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Development of Methods for Analysis of the Cost of Enlisted Attrition

Daniel F. Huck
Project Director

Kenneth D. Midlam
Principal Investigator

Assisted by:

Geraldine Sica
Alex Bocast
Agnes Purcell

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September 1977

**GENERAL
RESEARCH**



CORPORATION

WESTGATE RESEARCH PARK, McLEAN, VIRGINIA 22101

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(Continuation of Block 20.)

programs which will relate the data to the models in an easy-to-use, efficient, and flexible way.

Data bases for attrition data for both the Navy and Marine Corps have been compiled. The cost data included here are felt to encompass all significant costs associated with first-term enlistees. The utility functions developed in this study are much more comprehensive than was originally planned because of a realization of the great impact the utility function assumptions have on the cost-effectiveness measures. The computerized Attrition Cost Analysis System has been shown to be a flexible and versatile tool for the analysis of issues related to first-term attrition and, with the data bases provided, can be a valuable addition to the manpower policy analyst's research capability.

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1 EXECUTIVE SUMMARY

INTRODUCTION

The advent of the Volunteer Force and the accompanying rise in the cost of military manpower has brought increasing attention to the cost-effective acquisition and management of military personnel. While a great deal of research has been carried out in recent years on the acquisition of "quality" personnel, considerably less attention has been given to analysis of the effect of qualitative factors other than education and mental quality on performance, and to measuring the real effectiveness of different kinds of personnel in the Service. Recent perceptions that losses, especially of first-term personnel, have been rising sharply has brought a new interest in ways to evaluate different groups of enlistees and to identify those characteristics of enlistees that appear to be related to satisfactory completion of contracted service obligations.

This report is the product of a study conducted by the General Research Corporation, funded by the Office of Naval Research. In this study, models that explicitly relate attrition, cost and value are defined and evaluated.

The objectives of this study were to:

- Develop cost-effectiveness measures for first-term enlisted personnel integrating attrition, cost and value parameters.
- Compile as complete a data base on these parameters as could be accomplished with the Services' cooperation (but without creating significant new data systems), concentrating on those qualitative or identifying factors that can be known about an individual at the time of enlistment.
- Develop a user-oriented system of computer programs which will relate the data to the models in an easy-to-use, efficient, and flexible way.

ATTRITION COST ANALYSIS SYSTEM (ACAS)

This study develops a user-oriented computerized system that integrates attrition, cost and utility data to compute certain cost/benefit measures of interest to personnel planners. The basic parameters of attrition, cost and utility are first defined as functions of the first-term enlistee's month of service. These functions are then combined to produce certain cost/benefit measures, including:

- Expected Service Time - the number of months (out of a possible 48) that an enlistee of a certain type will serve, on the average;
- Expected Cost - the costs expected to be incurred by an enlistee of a certain type, given an expected attrition pattern over time of service;
- Expected Value - a measure of the productivity of an enlistee of a certain type over his first term. Value, or utility, is measured relative to the productivity of a fully qualified journeyman and depends on the expected attrition function of the enlistee and his learning curve.
- Cost per Utile - defined as the ratio of expected cost over expected value.
- Net Investment Cost - a more complex cost/benefit measure that explicitly relates attrition, cost and utility in a way consistent with the theory of Human Capital Accounting. Specifically, this is the discounted sum (over time) of the difference between the cost of an individual and the value of what he produces. This value is measured in dollar terms as the cost of the number of fully qualified journeymen required to produce equivalent output.

A great deal of flexibility has been built into this system, permitting the user to ask a wide variety of questions, to specify the accession group of interest at several levels of aggregation, and to control the kinds of output needed. The system also permits the user to override any data in the system and to add new data, including new classes of cost data. Learning to use the system requires minimal instruction to new users. Commands have been written using descriptive English language terms and free-form formats.

DATA

Attrition Data

The primary focus in this study is the attrition of first-term enlistees. A good data base on losses is essential to this analysis. Data required to obtain loss rates and, consequently, survival functions were virtually all available from the Defense Manpower Data Center (DMDC) in the form of gain and loss transactions. For this study, all gains and losses for enlistees with accession dates between July 1972 and September 1976 were extracted to construct a series of matrices of inventories and losses by month of service. For Navy and Marine Corps male enlistees, over 2500 such matrices were constructed, representing various combinations of levels of the following factors:

- Civilian education
- Mental group
- Age at entry
- Term of enlistment
- Number of dependents at entry
- Race
- Enlistment bonus
- Personnel or military occupational community
- Accession era (pre-FY76, FY76 or later).

Each matrix contains, for each month of service from 0 through 48, a starting inventory and counts of separations of each of the following types:

- EAOS and other favorable
- Dropped from rolls as a deserter
- Unsuitability/unfitness
- Misconduct
- Trainee discharge
- Other adverse

With these sets of data, survival functions for almost 70,000 different aggregations/classifications of enlistees can be constructed for either service. Data for female enlistees have been collected in a similar way, except that the number of classifying variables is smaller.

Cost Data

Most of the relevant cost data are not defined by month of service. They are either one-time costs or are defined by paygrade. To construct costs by month of service required estimates of the average grade by month of service. These average grade data were estimated by education, mental group, race and personnel community for each service. Cost data were obtained from a variety of Navy and Marine Corps sources. The cost elements included are:

- Recruiting and initial processing
- Basic and advanced individual training
- Base pay, allowances and incentive pays
- Medical
- Travel
- Judicial and corrections

Because variable costs, rather than total costs, are appropriate for most of these analyses, the fixed and variable portions of each of the cost elements were separated wherever possible.

Utility Data

This report presents reviews of several recent studies that have attempted to estimate relative utilities of military personnel. It also reviews different assumptions that can be made about an enlistee's utility over time. Three specific forms of the utility function were considered: constant utility; utility proportional to cost; and utility derived from measures of learning and productivity. The last form seems generally preferable and is developed in some detail. This utility function is derived from measures of on-the-job proficiency. It defines the male mental category I-IIIA high school graduate in his 48th month of service as being the most nearly fully qualified journeyman possible in the first term. His utility is defined to be equal to one. All other enlistees and months of service have utilities which are scaled from the defined maximum.

The GRC utility curve is based upon "s"-shaped logistic learning curves. Learning curves provided by the Center for Naval Analyses determine the initial slope of the curve following graduation from A-school. Measures

of the technical components of ratings and of journeyman proficiency are then presented. The time paths connecting these measures are estimated, using data on minimum longevities. The estimated output utility curves are presented for various categories of first-termers. The results of this derivation are compared with work done for the Air Force by RAND, and are shown to be consistent with the available studies on first-term performance and learning.

SAMPLE ANALYSES

To illustrate the use of ACAS, three sample problems are analyzed. The first problem demonstrates how radically different results can arise from differing choices of utility functions. Four groups of Navy enlistees were evaluated:

- High school graduate, mental groups I-IIIA
- High school graduate, mental group IIIB
- Non-graduate, mental groups I-IIIA
- Non-graduate, mental group IIIB.

Each group was evaluated twice, once using a learning-curve utility function, and once using a utility function whose value is equal to one for all months of service after training. When learning-curve functions were used, the costs per utile for the four groups were in the order in which the groups were listed above. When the alternate utility function was used, the orderings were exactly reversed. The results of this analysis are summarized in Table 1.1.

Table 1.1 also shows that education has a much greater effect on continuation behavior than does mental ability (excluding mental group IV). Among mental groups I-IIIA, high school graduates stay in the Navy an average of 10.8 months longer during their first term than do non-high school graduates. For persons in mental group IIIB, this difference is (coincidentally) also 10.8. This contrasts with the fact that, holding education constant, persons in mental groups I-IIIA stay in the Navy only 1.2 months longer during their first term than do persons in mental group IIIB. (However, mental group IV personnel stay in the Navy significantly fewer months than persons in all other mental groups.)

Table 1.1
EFFECT OF UTILITY FUNCTION ASSUMPTIONS
ON RELATIVE COST EFFECTIVENESS
OF NAVY ENLISTEES

	<u>High School Graduates</u>		<u>Non-High School Graduates</u>	
	<u>I-IIIA</u>	<u>IIIB</u>	<u>I-IIIA</u>	<u>IIIB</u>
Expected service months	40.8	39.6	30.0	28.8
Expected cost	\$27,907	\$26,238	\$18,195	\$17,726
<u>Learning curve utility function</u>				
Expected useful service months	27.1	22.4	14.8	12.9
Expected cost per utile	\$1,029	\$1,171	\$1,233	\$1,376
<u>Utility function equal to one</u>				
Expected useful service lives	35.3	34.8	26.2	26.0
Expected cost per utile	\$791	\$754	\$694	\$682

NOTE: All personnel are assumed to attend A-school.

The second sample problem evaluates a voluntary separation program for non-A-school eligible enlistees. Data used in this problem were taken from a recent test of an actual Navy voluntary separation program. Fifteen hundred non-A-school enlistees who enlisted in January 1976 were given an option to leave the service after the completion of apprentice training. Their loss experience is compared to the expected behavior of a group of the same quality make-up assumed to enlist without the voluntary separation option. Using projections based on historical attrition behavior for the non-opt-out group, and actual experience and projections through the end of the first term for the opt-out group made by OP-964, the cost-effectiveness of the voluntary separation option was evaluated.

The results of this preliminary evaluation, as detailed in Table 1.2, show that regardless of quality class (A, B, C or D), the voluntary separation program may not be cost-effective. In fact, it is predicted to increase accession requirements for non-A-school students by 61 percent and is predicted to cost, over the 4-year term, \$2.5 million more to get as many useful service months as would be expected from the 1500 enlistees entering without the separation option. These findings are dependent upon the particular utility function assumed; in this case, utility was assumed to be proportional to cost after recruit and apprentice training (none of the personnel attended A-school). A different utility function assumption could result in a different finding. (Note that comparisons between Tables 1.1 and 1.2 should not be made because of differences in loss rate data and in the utility function assumed.)

The third case problem was a cost/benefit comparison between male and female enlistees. This example was chosen because of the significant attention being given to plans for increased utilization of women. In this problem, cost/benefit measures were developed for Navy 4-year term NPS male HSG, M.G. I-IIIA and NPS female, HSG (the vast majority being in M.G. I-IIIA) (see Table 1.3). The results show that, while females experience slightly higher attrition (3-5 percent), they are a most cost-effective alternative to their male counterparts at present recruiting

Table 1.2
ILLUSTRATIVE EVALUATION OF A NAVY
VOLUNTARY SEPARATION TEST PROGRAM
(Costs in dollars)

	Quality group			
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
<u>Expected service months</u>				
No-opt-out	36.0	32.4	27.6	27.6
Opt-out	18.0	16.8	20.4	18.0
<u>Expected cost</u>				
No-opt-out	24,307	20,338	17,146	17,424
Opt-out	14,851	11,412	13,752	11,275
<u>Expected useful service months</u>				
No-opt-out	28.8	22.8	19.2	18.0
Opt-out	15.6	12.0	14.4	10.8
<u>Expected cost per utile</u>				
No-opt-out	844	862	893	968
Opt-out	952	951	955	1,044

NOTE: Utility is assumed proportional to cost after recruit and apprentice training.

Table 1.3
COMPARISON OF NAVY MALE AND FEMALE
HIGH SCHOOL GRADUATES
(Learning Curve Utility Function)

	Males (I-III A)	Females *
Expected service months	40.8	38.4
Expected cost	\$27,907	\$25,418
Expected useful service months	27.1	25.8
Expected cost per utile	\$1,029	\$984

* Nearly all females are in mental groups I-III A.

levels. The primary reason that the cost indices favor the acquisition of females is that recruiting costs are presumed to be considerably less for females (\$875) than for quality males (\$2,100).

The conclusion that females are presently more cost-effective than quality males is tentative and further research needs to be conducted. Expanded utilization of women implies greater input into those skills and activities that have been historically dominated by males, and accelerated movement into these non-traditional occupations by females could raise attrition and possibly require greater recruiting effort should resistance develop in the female labor pool to entering these skills. Events such as this could markedly change the current cost picture, making males a more cost-effective choice.

SUGGESTIONS FOR FURTHER ENHANCEMENTS

On balance, the objectives of this study have been met. Data bases of attrition data for both the Navy and Marine Corps have been compiled. The cost data included here encompass all significant costs associated with first-term enlistees. The utility functions developed in this study are much more comprehensive than was originally planned; but, as discussed previously, a realization of the great impact the utility function assumptions have on the cost-effectiveness measures led to a much stronger focus on the utility measures. The computerized ACAS has been shown to be a flexible and versatile tool for the analysis of issues related to first-term attrition and, with the data bases provided, can be a valuable addition to the manpower policy analyst's research capability. ACAS is available to the user community for implementation on users' IBM 360/370 computers.

This study has not, however, produced a faultless, comprehensive system. Several valuable enhancements and refinements of the system are possible. The need for some of these refinements has become apparent only upon completion of the data collection accomplished in this study. In retrospect, these refinements are related primarily to the recognition that some of the quality and demographic disaggregations can be improved upon and that some of the more significant factors influencing attrition and utility are "in-service" factors, which were not used for classification purposes in this

study. It is also true that using in-service factors will require historical data bases that do not now exist in a usable form.

The development of a Linked Transaction Data Base (LTDB) would provide much of this information. This data base should include not only attrition, promotion, and loss data but also training and rotation data. The more detailed survival functions available from such a data base would increase the accuracy of the loss rates. Additionally, it would provide further information on the Navy training programs such as the disposition of personnel who attrite from formal schools.

The ACAS could also be improved by adding a loss forecasting system. Appendix E explains ELIM, the loss forecasting system for the Army. A similar system could be developed for ACAS.

While much work has been done on the utility data for this study, more analysis is needed. Since the utility function frequently dominates the cost-effectiveness calculations, the differences in the shapes of these functions for various ratings (and for non-rated personnel) need to be investigated.

Since the model as developed considers only first-termers, a logical extension would be to add the second-termers to the system. Another possible extension would permit the user to specify a mix of enlistees by quality and demographic factors for the system to compute weighted cost-effectiveness measures for the given distribution.

Two other items should be mentioned in discussing refinements to the system. First, since the results of the model are only as good as the data in the data bases, a system of regular updating should be developed to insure that the data bases are kept current. Second, this model is batch-oriented with multiple card inputs. Although the card formats are as simple as possible, there is still room for user errors. A terminal-operated, interactive system would simplify the runs. The user would be guided through the inputs by the program and any errors would be detected immediately. Looping through the program would be simplified and the results would be immediately available.

Any or all of these changes would further enhance the value of ACAS to its users.

2 TECHNICAL DEVELOPMENT

INTRODUCTION

In this chapter, the basic parameters of attrition, cost and value are defined, and various ways of combining them into useful measures for analysis of first-term attrition effects are explored.

The rationale for integrating attrition, cost and value is similar to the conceptual approach of life-cycle costing in equipment acquisition decisions, wherein reliability, acquisition, maintenance and operational costs and performance parameters are integrated into direct measures of total cost per unit time or unit output.

GENERAL APPROACH

The basic parameters are defined and manipulated in this chapter without regard to the availability of data or the definition of how, exactly, values of the parameters may be estimated. The following three chapters discuss, in turn, the attrition, cost and value data that have been obtained for this study. Chapter 6 then presents the Attrition Cost Analysis System which integrates the analytical concepts developed in this chapter with the data which is available into a user-oriented computer system for analyzing specific policy and program issues that first-term attrition patterns may influence.

In the discussion that follows, it will be assumed that some identifiable class of enlistees has been defined, and no direct reference to this class will be included in the mathematical notation.

ATTRITION FUNCTIONS

To begin, the conditional loss rate in the i^{th} month of service, L_i , is defined as the probability that an individual in the Service at the beginning of the i^{th} month will be lost to the Service during the i^{th} month. $L_{i,j}$ can, therefore, be defined as the conditional loss rate for loss of type j (EAOS, DFR MISCONDUCT, etc.) in the i^{th} month.

Then, obviously,

$$L_i = \sum_j L_{i,j} \quad (2.1)$$

Since one objective is to relate attrition to cost and value, L_i by itself is not a sufficient characterization of attrition. More useful is the probability that an enlistee survives through the i^{th} month, P_i , so that

$$P_i = (1-L_i)P_{i-1} ; P_0 = 1.0 \quad (2.2)$$

$$\text{or } P_i = \prod_{k=0}^i (1-L_k) ; L_0 = 0.0$$

and $(1-L_i)$ is the conditional probability of completing the i^{th} month, given that the enlistee was present at the beginning of the i^{th} month. This parameter, P_i , is a non-increasing function of i as illustrated in Fig. 2.1.

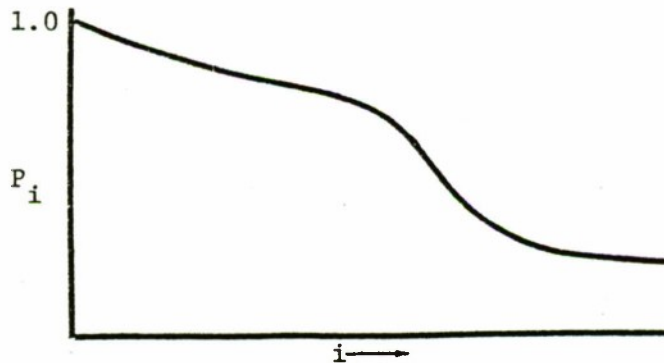


Fig. 2.1—Typical Survival Function

It can be immediately seen that the expected service time (ES) can be estimated directly by summing P_i over i . That is:

$$ES_k = \sum_{i=1}^k P_i \quad (2.3)$$

and estimates the expected number of months (out of a maximum of k months) the enlistee is expected to serve, on the average.

ATTRITION AND COST FUNCTIONS

If the cost of the enlistee in his i^{th} month of service, C_i , is known, the expected cost (EC) of this enlistee over the first k months can be calculated as

$$EC_k = \sum_{i=0}^k P_i C_i \quad (2.4)$$

UTILITY OR VALUE FUNCTIONS

To complete the basic parameter definitions, a way to express value parametrically is required. For this purpose, a function, U_i , can be defined as illustrated in Fig. 2.2.

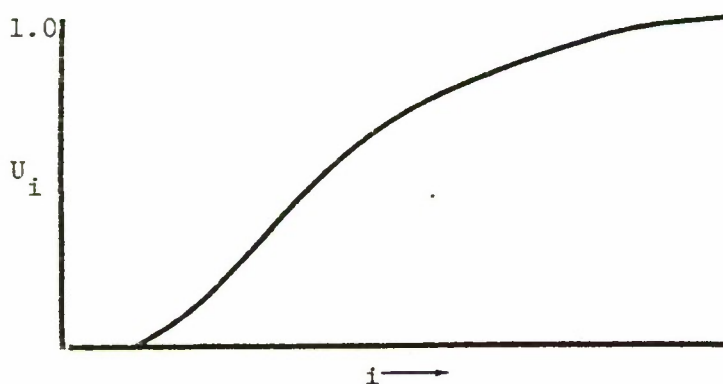


Fig. 2.2—Value or Utility Function

The function is never negative and has a maximum value of 1.0. The non-negativity restriction is imposed here because, as shown in Chapter 5, there is insufficient information to construct utility or value functions with negative values. It is theoretically possible, and probable, in fact, that this function assumes negative values during some early months. The function illustrated in Fig. 2.2 is based on the measurement of the enlistee's own output, which cannot be negative. If data were available, it would be preferable to measure the net output of the unit, given this enlistee's presence, and thereby obtain a direct measure of his on-the-job training (OJT) cost. In this latter context, the value function would be negative when his output is less than the output foregone by other members of the unit when their efforts are diverted to the new member's training. However, since sufficiently reliable information on such OJT costs was not available, the restriction of measuring only the new enlistee's direct output is accepted. This will not, of course, prevent the analyst from either respecifying the value function or from including these OJT costs as costs, i.e., estimating OJT costs directly as an addition to the basic cost function.

Given U_1 , then, the expected value (of output) to be gained from an enlistee can be calculated so long as a reasonable interpretation can be made of the times when $U_1=1.0$. In most of what follows, the value will be defined as 1.0 for a high school diploma graduate, mental group I-IIIA, in his 48th month of service. With this definition

$$EV_{48} = \sum_{i=0}^{48} P_i U_i \quad (2.5)$$

measures the expected number of months of service over the first term of value equivalent to that expected of the aforementioned high school graduate in his 48th month.

COMBINED COST EFFECTIVENESS FUNCTIONS

The results of equations 2.4 and 2.5 can now be combined to define the cost-effectiveness measure,

$$\text{Cost/Utile} = \text{EC/EV} \quad (2.6)$$

where a "utile" is defined to be one month of service of a fully-qualified journeyman (i.e., a high school graduate, mental group I-IIIA, in his 48th month of service). This choice of words and definitions is intended to be compatible with the terminology of the Navy Year of Service Optimizer. Certain other statistics can be obtained from these basic parameters and measures. The expected number of accessions required to produce one enlistee at the end of the first term (assume 4 years) is simply $1/P_{48}$, and the expected cost to get one enlistee to that point would be EC_{48}/P_{48} .

An alternative approach to the integration of attrition, cost and value can be found in variations of human capital accounting methods.* Using this methodology, the Net Investment Cost (NIC) can be defined

$$\text{NIC} = \sum_{i=0}^k e^{-s_i} P_i (C_i - U_i C') \quad (2.7)$$

where s is a discounting factor and C' is the cost of a high school graduate, mental group I-IIIA, in his 48th month of service.

Some manipulation of equation 2.7 shows that, if the discounting function were included in equations 2.4 and 2.5,

$$\text{NIC} = \text{EC} - C'(\text{EV}) \quad (2.8)$$

Figure 2.3 further illustrates the relations among NIC, EC, and EV. It is seen from equation 2.8 and Figure 2.3 that NIC is the difference between total expected cost and the total output of the enlistee measured

* Gay, Robert, "Estimating the Cost of On-the-Job Training in Military Occupations: A Methodology and Pilot Study," Rand Corporation, April 1974.

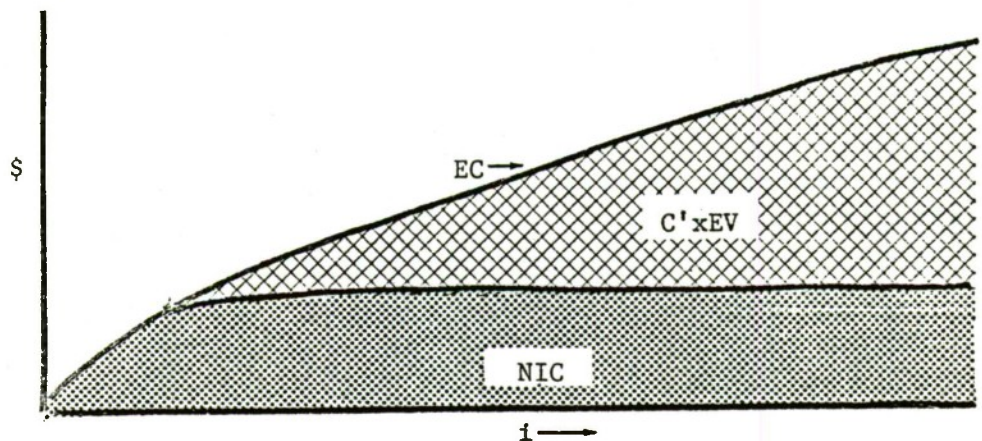


Fig. 2.3—Relationships Among EC, EV and NIC

in terms of the cost of a fully qualified journeyman. Depending on the relationship between cost and value over time, NIC may be quite flat, as in Figure 2.3, where over most of the first term cost is almost exactly proportional to value, or it may increase or decrease over time, according to whether cost is greater than or is less than the value, in dollar terms, of output.

SUMMARY

The preceding discussions define the basic statistics to be used to evaluate the effects of first-term attrition and to evaluate policy and program alternatives that affect first-term attrition, cost or value.

As is evident in this discussion, the mathematical formulations and data collected have been restricted to only first-termers, and, in terms of contract objectives, this appears to be basically a satisfactory restriction. There are, of course, much more general, and in some contexts, more meaningful, formulations that could be made if the restriction on data to first-termers were relaxed. Generally speaking, it might be preferable to contrast the "value" of a first-termer in his i^{th} month

of service against a careerist in his i^{th} month of his present term. This would provide a more nearly explicit evaluation of the worth of the reenlistment bonus. Several difficulties arise (not insurmountable) with this approach. Particularly complicating is the fact that the work requirements placed on first-termers and careerists are not the same; therefore, constructing a unified value function is difficult. Some work has been done in this area as part of the development of the Navy's Year of Service Optimizer.

In keeping with contract objectives, the GRC approach has focused on methods of comparing different kinds of first-termers. There has been no organized attempt to define, analytically, the "optimum" mix of accessions or the optimum ratio of first-termers to careerists. Extensions of the basic mathematics developed here, together with additional data on quality requirements by skill or rating and other relevant constraints, could lead to a specification of an optimum mix of first-termers. The optimum mix of first-termers and careerists, in the Navy, is addressable with the Year of Service Optimizer.

The following chapters will define the data that are available for evaluation of these statistics for different groups of first-term enlistees and develop an easy-to-use computerized system to aid in the production and presentation of the available data and analyses.

3 FIRST-TERM ENLISTED ATTRITION DATA

This is the first of three chapters which deal with the data necessary for implementation of the methodology detailed in Chapter 2. This chapter discusses the attrition data bases that have been developed for Navy and Marine Corps first-term enlistees.

GENERAL APPROACH

To construct survival functions for some group or type of enlistees requires a capability to link gain and loss transactions for individual enlistees so that a longitudinal analysis of the loss-time of service pattern can be accomplished. The Marine Corps Transaction Retrieval System contained a historical data base which could have been used to obtain the desired data. Unfortunately, long-term problems in the Marine Corps Headquarters Data Processing Activity prevented satisfactory processing of these data. After several months of attempts to get the data, the effort was abandoned and an alternative source sought.

There was no data base of the scope required available to GRC for Navy gains and losses from Navy sources. These data were available in a modified form from the Defense Manpower Data Center (DMDC, formerly MARDAC). DMDC had data on gains and losses for all services occurring between July 1972 and September 1976 for all enlistees whose accession dates were in the same time frame. These data were used from the start for the required Navy attrition data and, because of the problems discussed above, eventually were also used to acquire the Marine Corps attrition data.

The services' monthly gain/loss transaction tapes contained a record for each gain and loss (by Separation Program Number, SPN or SPD), with the individual identified by Social Security Number (SSN) and a variety of qualitative and demographic data. These tapes were converted by DMDC to a form more efficient for processing and losses were recategorized

into a reduced set of loss types of reasons. The mappings used by DMDC and GRC are shown in Annex 2 of Appendix D. In terms of GRC research objectives, one major flaw exists in these DMDC loss data files: the transactions represent legal Federal service separations and desertions are not included, although subsequent separations resulting from desertions are. Therefore, in some cases, estimates of real effective time in service are understated. Nevertheless, this was the only source of attrition data of the form and extent required which could be accessed in the time frame of this study.

The objective in processing these data was to arrive at a table of data as shown in Table 3.1. The particular loss classes or types in Table 3.1 were chosen to identify loss rates according to the most frequent cause of loss, or because they represent a class of special interest to potential users. The DFR category, of course, is nearly empty since the DMDC data, as discussed above, would show desertion losses only when the deserter was separated after one year's absence. For the most part, the Trainee Discharge losses are also very small since such programs have not been significantly implemented by either service. Counting the losses by type and month of service was straightforward (although it may not always be stated precisely in this report, distinctions between "month of service" and "months served" were recognized in the processing of these data and in the development of the Attrition Cost Analysis System in Chapter 6). Because loss patterns were not constant over the 7/72-9/76 time period, loss and population counts were weighted according to their actual (calendar) month of occurrence according to a simple linear function so that 7/72 transactions were assigned a weight of .5 and 9/76 transactions, a weight of 1.50.* The formula used to calculate the weights was:

$$W = \frac{1}{T-1} \left(\frac{T-3}{2} + M \right) \quad (3.1)$$

* This arbitrary set of weights, which essentially gives three times more emphasis to the most recent events than to the earlier events, has been used with good results in two previous studies by GRC (Evaluation of the U.S. Army Two-Year Travel and Training Enlistment Options, December 1974, and Evaluation of the Effectiveness of U.S. Army Enlistment Bonuses, June 1976).

Table 3.1

POPULATION AND LOSS DATA MATRIX

Month of service	LOSS TYPE					
	Population	EAOS *	DFR **	Misconduct	Unsuitability	Trainee discharge Other adverse
0						
1						
2						
.						
.						
.						
.						
50						

* Plus other losses not usually classified as adverse.

** Since the data from DMDC are separations only, the entries in this column include only deserters absent over a year.

where M is the number of elapsed months from 7/72 to the transaction month and T is the maximum number of months of data available. In this particular study, T equalled 51 so that:

$$W = (24 + M)/50 \quad (3.2)$$

Two different methods were required to obtain the population counts that would become the denominator in calculating loss rates. For enlistees who were losses during the data base period, it was a simple matter to count the actual number of months served and to add to the population counts a weight for each month served, where the weights were determined by the calendar month in which the individual's month(s) of service took place. For enlistees who were not losses, the number of months served through 9/76 was determined and the population column counts adjusted with weights determined as above for the months served from accession month through 9/76. The following illustrate this process more concretely:

Enlistee A, accession date - 9/72, misconduct discharge - 7/73

Enlistee B, accession date - 11/75, no loss through 9/76

Enlistee A becomes a loss in his 10th month of service. Using equation 3.2, a transaction occurring in 7/73 carries a weight of $(24 + 13)/50 = .74$; this weight is added to the matrix of counts for the cell corresponding to a misconduct loss in the 10th month of service. Likewise, the population column cells for months of service 0 through 9 have weights added to them of .54, .56... .72, respectively. For Enlistee B, no loss counts are recorded. The population column counts for month of service 0 through 10 have weights added to them of 1.30, 1.32 ... 1.50, respectively.

ATTRITION DATA COLLECTED FOR THIS STUDY

Tables 3.2-3.4 define the qualitative and other variables which have been used to classify the enlistees for purposes of loss differentiation. For each possible combination of levels of these factors, a table such as Table 3.1 exists as a result of the processing of the DMDC accession and separation data.

Tables 3.2 and 3.3 define the available data for Navy and Marine Corps males, respectively. Table 3.4 covers the Navy and Marine Corps female data.

Table 3.2
NAVY MALE ENLISTEES
AVAILABLE DATA CLASSIFICATIONS

Variable	Levels Defined
Civilian Education	(1) High school graduate (includes GED's) (2) Non-high school graduate
Mental Group	(1) I-III A (2) III B (3) IV
Race	(1) White (2) Black and other
Number of dependents at entry	(1) None (2) 1 or more
Accession Era	(1) Pre FY1976 (2) Post FY1976
Enlistment Bonus	(1) Yes (2) No
Age at Entry	(1) 17 (2) 18 (3) 19 +
Term of Enlistment	(1) 3 years (2) 4 or more years
Personnel Community	(1) Technical (2) Aviation (3) Engineer, Hull & Deck (4) Supply, Medical, Administration (5) Other
Loss Type	(1) EAOS (2) Dropped from Rolls as Deserter (3) Misconduct (4) Unfitness (5) Trainee Discharge (6) Other Adverse

Table 3.3
MARINE CORPS MALE ENLISTEES
AVAILABLE DATA CLASSIFICATIONS

Variable	Levels Defined
Civilian Education	(1) High school graduate (includes GED's) (2) Non-high school graduate
Mental Group	(1) I-III A (2) III B (3) IV
Race	(1) White (2) Black and other
Number of dependents at entry	(1) None (2) 1 or more
Accession Era	(1) Pre FY1976 (2) Post FY1976
Enlistment Bonus	(1) Yes (2) No
Age at Entry	(1) 17 (2) 18 (3) 19 +
Term of Enlistment	(1) 3 years (2) 4 or more years
Personnel Community	(1) Aviation (2) Combat (3) Ground Support (4) Other
Loss Type	(1) EAOS (2) Dropped from Rolls as Deserter (3) Misconduct (4) Unfitness (5) Trainee Discharge (6) Other Adverse

Table 3.4

NAVY & MARINE CORPS FEMALE ENLISTEES

AVAILABLE DATA CLASSIFICATIONS

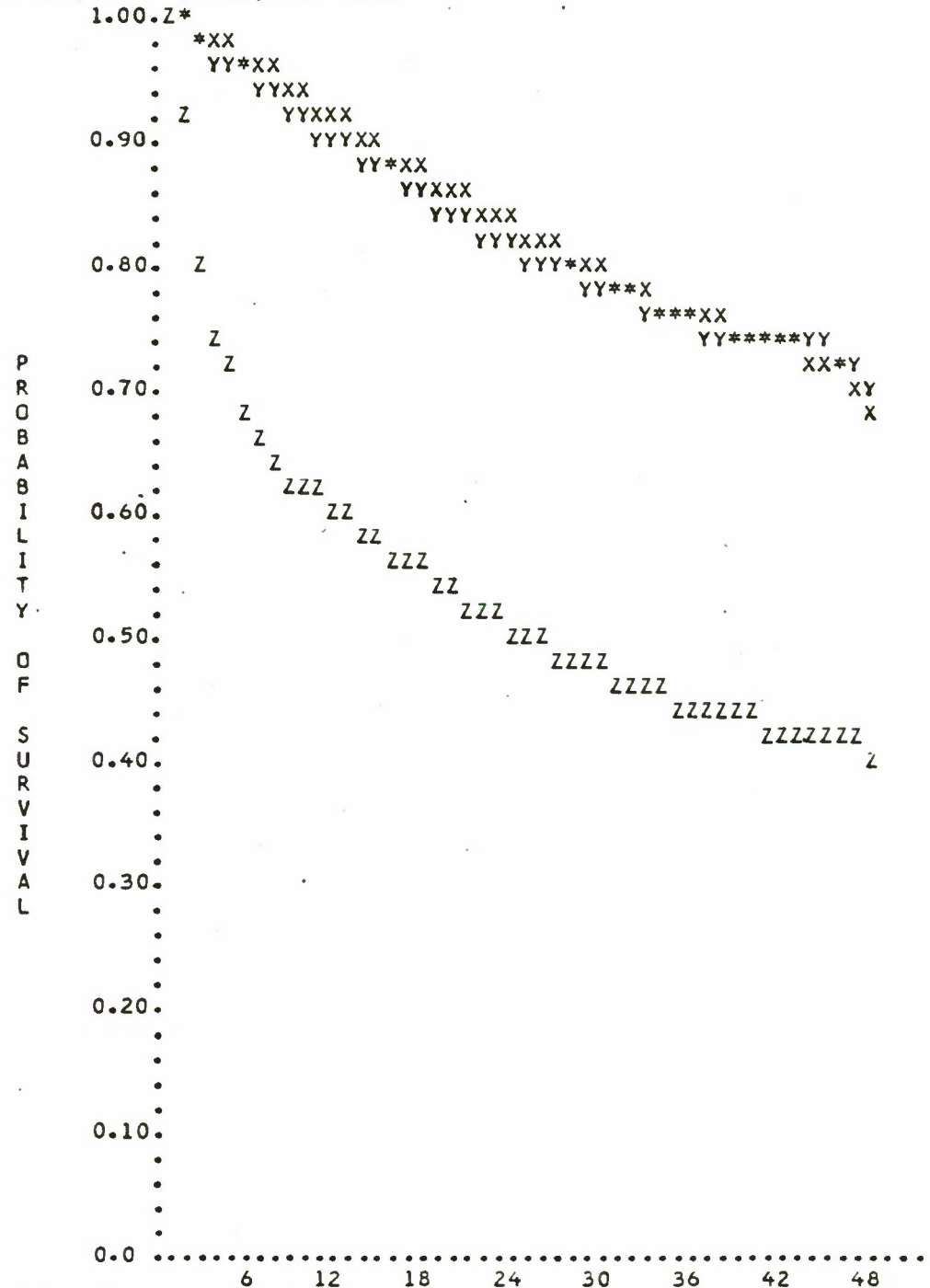
Variable	Levels Defined
Civilian Education	(1) High School Graduate (includes GED's) (2) Non-High School Graduate
Age at Entry	(1) 17 (2) 18 (3) 19 +
Race	(1) White (2) Black and other
Term of Enlistment	(1) 3 years (2) 4 or more years
Accession Era	(1) Pre FY1976 (2) Post FY1976
Loss Type	(1) EAOS (2) Dropped From Rolls as Deserter (3) Misconduct (4) Unfitness (5) Trainee Discharge (6) Other Adverse

SAMPLE SURVIVAL FUNCTIONS

In this section, using the Navy enlistee attrition data base, several groups of Navy enlistees are defined and survival functions constructed and compared. Five figures are presented showing various comparisons among these enlistee groups. The identifiers used for classifying the enlistees are commonly used for attrition analysis. The data have been aggregated over all levels of those factors not specifically identified in the figures.

As will be discussed in Chapters 7 and 8, some caution must be exercised in interpreting these results. In particular, care must be taken not to attribute to any enlistment group a loss propensity that may be, in part, due to in-service factors, which may be more or less independent of the characteristics of the classes of enlistees defined in this attrition data base. There is a correlation between, for instance, enlistee quality and the position he is likely to occupy in the service. Loss propensities for such a group will depend both on basic quality characteristics and on the enlistee's perception of his relative status or opportunity in the service. Although GRC is unaware of any empirical tests of this hypothesis, there would appear to be institutional biases against lower quality enlistees that result in failure becoming a self-fulfilling prophecy.

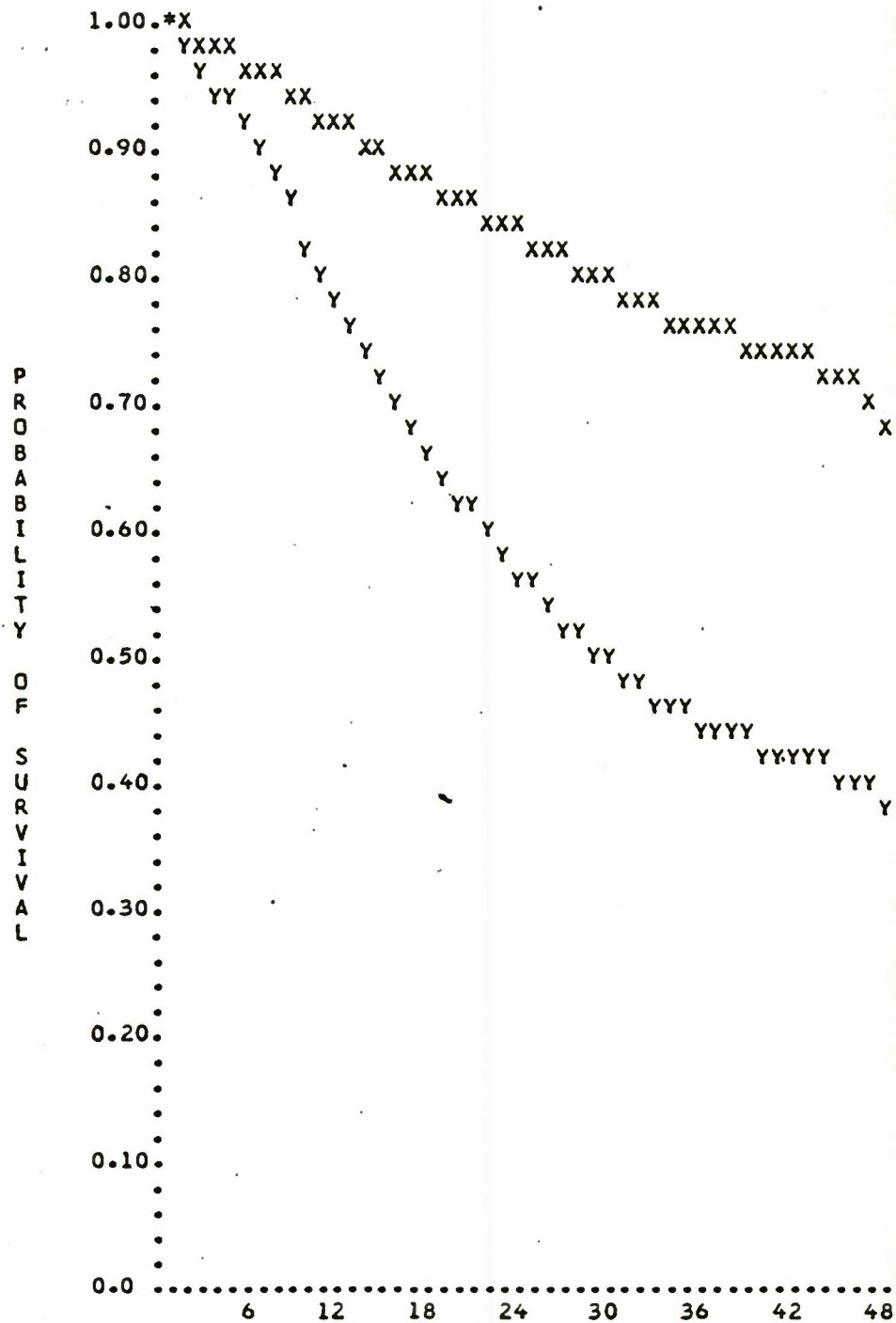
X-HSG, I-111A, MALE, 4 YR TERM
 Y-HSG, 111B , MALE, 4 YR TERM
 Z-HSG, IV , MALE, 4 YR TERM



NOTE-- * INDICATES THAT MORE THAN ONE VALUE LIES ON THAT POINT

Fig. 3.1—Survival Functions, US Navy First Term Enlistees

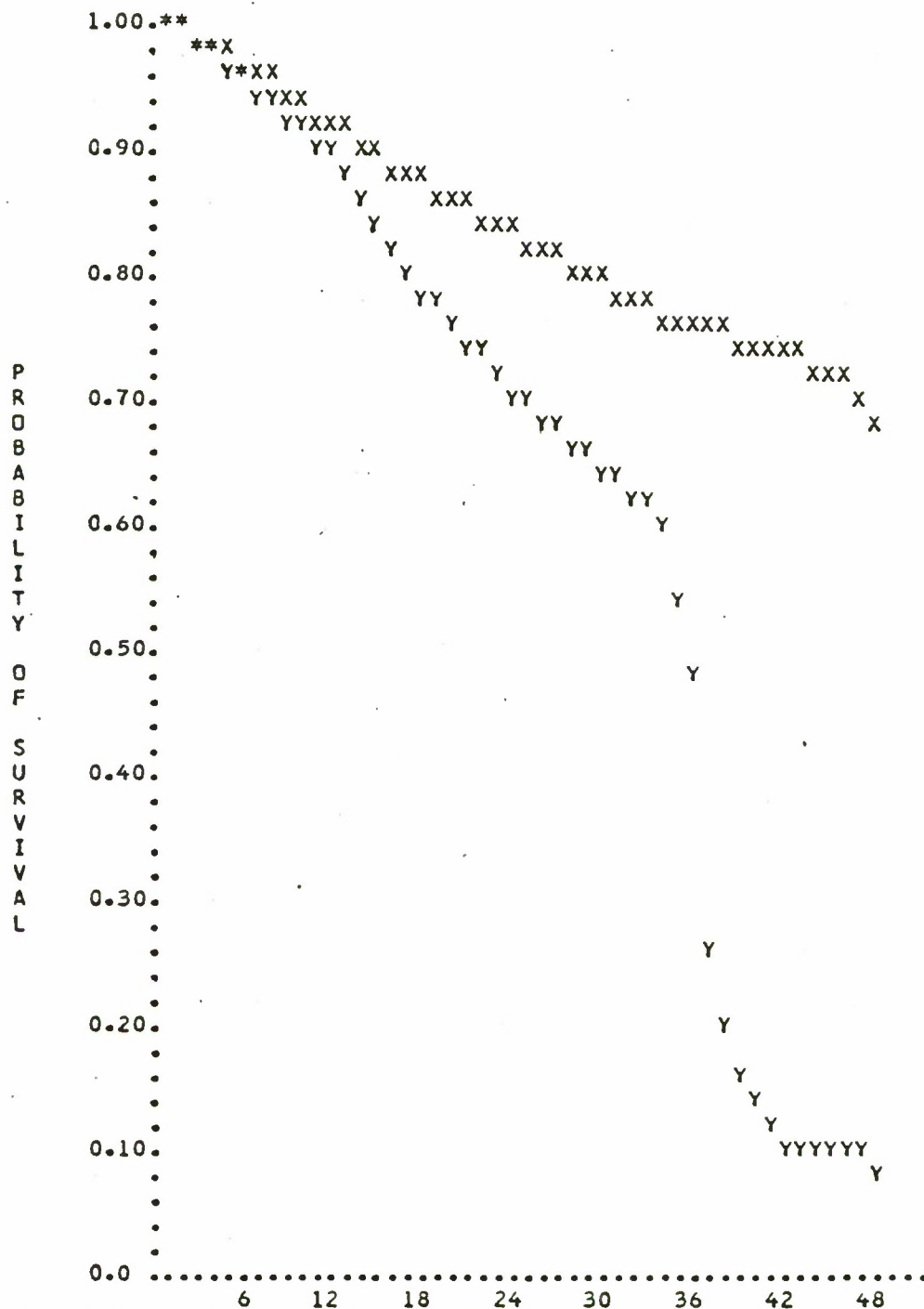
X-- HSG,I-III A,MALE,4 YR TERM
 Y--NHSG,I-III A,MALE,4 YR TERM



NOTE-- * INDICATES THAT MORE THAN ONE VALUE LIES ON THAT POINT

Fig. 3.2—Survival Functions, US Navy First Term Enlistees

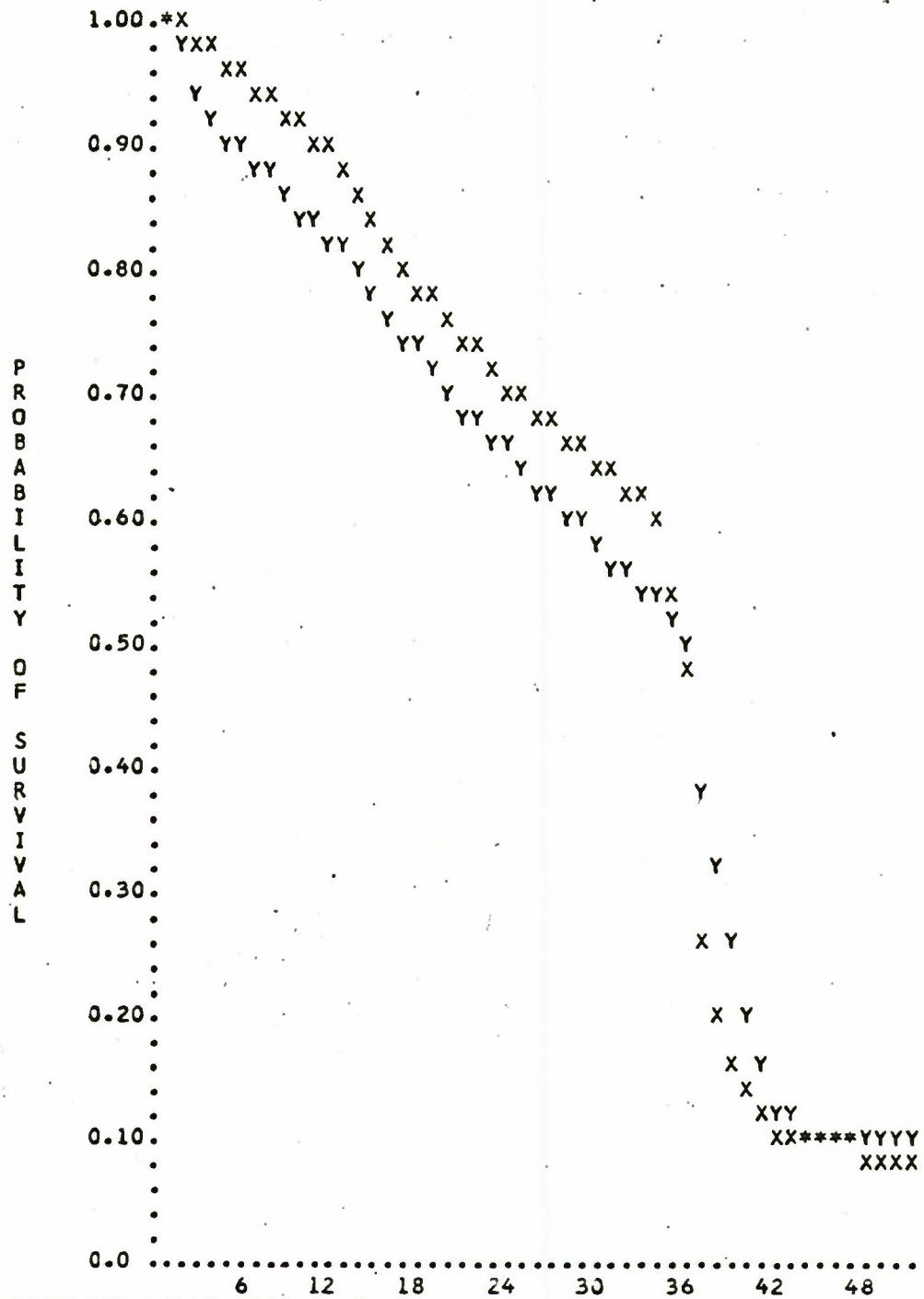
X--HSG,I-IIIA,MALE,4 YR TERM
 Y--HSG,I-IIIA,MALE,3 YR TERM



NOTE-- * INDICATES THAT MORE THAN ONE VALUE LIES ON THAT POINT

Fig. 3.3—Survival Functions, US Navy First Term Enlistees

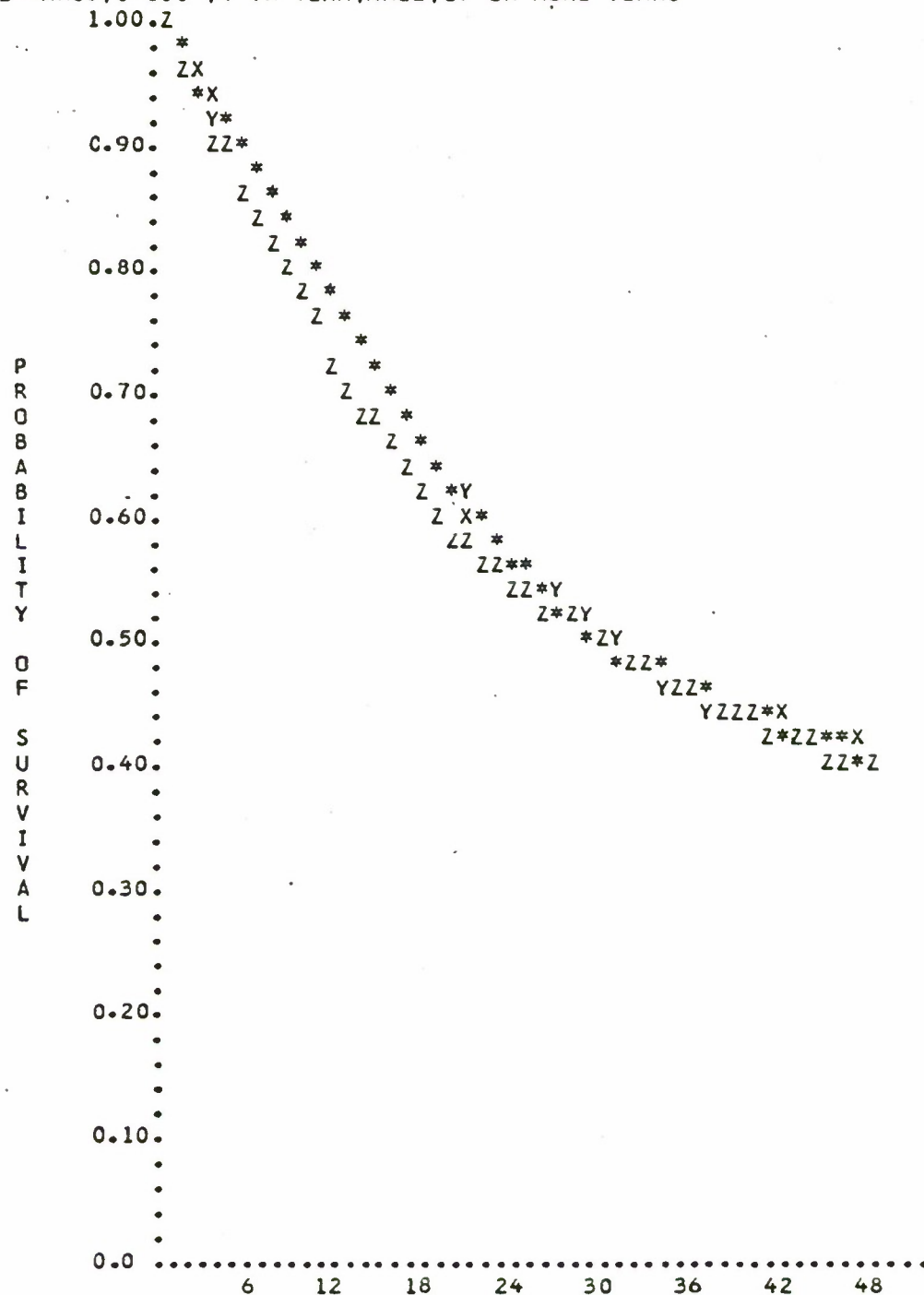
X--HSG, I-IIIA, MALE, 3 YR TERM
Y--HSG, FEMALE, 3 YR TERM



NOTE-- * INDICATES THAT MORE THAN ONE VALUE LIES ON THAT POINT

Fig. 3.4—Survival Functions, US Navy First Term Enlistees

X--NHSG, I-III ,4 YR TERM, MALE, 17 YRS
Y--NHSG, I-III ,4 YR TERM, MALE, 18 YRS
Z--NHSG, I-III ,4 YR TERM, MALE, 19 OR MORE YEARS



NOTE-- * INDICATES THAT MORE THAN ONE VALUE LIES ON THAT POINT

Fig. 3.5—Survival Functions, US Navy First Term Enlistees

4 FIRST-TERM ENLISTED COST DATA

INTRODUCTION

As discussed in Chapter 2, the Attrition Cost Model requires data on all relevant costs by time period of service (for first-term analyses, this will be by month of service). In this chapter, data are developed and presented for the following cost elements:

- Pay and Allowances
- Basic and Advanced Individual Training
- Recruiting and Acquisition
- Corrections and Judicial
- Health and Medical
- Travel

None of these data is generally available by month of service. For the most part, the data are defined by pay grade or are independent of time. For those which are defined by pay grade, it becomes necessary to develop estimates of the average grade by month of service. This has been done for both Navy and Marine Corps with separate pay grade by month of service data for the various combinations of civilian education, mental group, race and personnel community defined in Chapter 3. The sources of the data were the Navy and Marine Corps Enlisted Master Files of June 30, 1976. The results of processing these data are given in Appendix B, labeled "Unadjusted." As expected for the first 20 or so months of service (first 6 months for Marine Corps), many enlistees had no MOS or rating indicated. If only those individuals who received their rating early are used to estimate the average grade for that rating in, for example, the tenth month of service, the average grade in the early months of service for all those who will get that rating is clearly overstated. Therefore, an assumption has been made that essentially all individuals who are going to achieve a rating during their first term will have done so by the end of the third year. Therefore, the distribution of enlistees (for a given education, mental group, and race) among the personnel communities (including "No

Rating") during the 25th to 36th months of service has been used to allocate those in their 1st to 24th months of service with "No Rating" to the personnel communities for those first 24 months, thereby achieving a more nearly meaningful estimate of the average grade by month of service, during the early months for enlistees who will achieve a rating in personnel community. This method treats "No Rating" as a separate community and, therefore, it contains the appropriate number of enlistees after the reallocation as described. The results of these reallocations are shown in Appendix B labeled "Adjusted." (An additional note on the data: these data were obtained from MARDAC where enlistees with zero months of completed service are automatically combined with those having one month of completed service.)

BASE PAY AND ALLOWANCES

Navy

Two primary data sources have been used to generate pay and allowance data for Navy personnel. Base pay and monthly BAS and BAQ for FY77 are available from many sources. The relevant data are shown in Table 4.1.

To translate these data into average costs per enlistee per month requires estimates of the proportion of all enlistees of a given type actually receiving these pays or allowances. Pers-342 and Pers-352 jointly produce a quarterly report that can be used to generate the required data when combined with the average grade data. The Pers-342/352 report, Military Pay Stratified Statistical Sample, Transition Quarter FY 1977 MPN, was used for this study. It provides estimates, by type of pay or allowance, of the fraction of enlistees by grade and personnel community who received the pay or allowance at some time during the quarter and the average number of days in the quarter the pay or allowance was actually received. That is, if A is the monthly allowance, P is the fraction receiving the allowance at some time during the quarter, and D is the average number of days in the quarter the allowance was received by those who received it, the weighted average monthly cost, C, for all enlistees will be:

$$C = (P \times D \times A) / 90$$

The one exception to this computation is on-base subsistence, which is included as a real direct cost to the Navy and is calculated as \$2.72 per

Table 4.1

BASE PAY AND ALLOWANCE FACTORS
(FY 1977)

Grade	Monthly Base Pay			Monthly BAQ			
	< 2 yrs	2 yrs	3 yrs	With dep	W/o dep	Inadequate quarters	Partial BAQ
E1	374.40	374.40	374.40	128.40	73.80	32.10	3.90
E2	417.30	417.30	417.30	128.40	78.30	32.10	4.20
E3	433.20	457.20	475.50	128.40	88.50	32.10	4.50
E4	450.60	475.80	503.70	147.90	99.30	37.00	4.50
E5	468.90	510.30	534.90	168.30	112.50	42.10	4.80

<u>Subsistence</u>		<u>Clothing Allowance</u>
Leave rations, BAS, etc.	2.65/day	BMA - 5.10/mo
On-base rations	1.85/day *	SMA - 7.20/mo

* Daily rate of \$2.72 deflated to account for 32% "no-shows." The 32% is estimated from Navy Enlisted Dining Facility data.

<u>Monthly Incentive Pays</u>				
	<u>Flight Pay</u>		<u>Parachutist</u>	<u>Sea/Foreign Duty</u>
	<u>Crew</u>	<u>Non-crew</u>		
E1	45.00	55.00	55.00	8.00
E2	50.00	55.00	55.00	8.00
E3	57.50	55.00	55.00	9.00
E4	65.00	55.00	55.00	13.00
E5	70.00	55.00	55.00	16.00

day for all enlistee days where no other subsistence is paid; this amount is reduced by 32 percent for "no-shows."

The six personnel communities used in the stratified sample were:

- Seabee/Musician
- Engineer/Deck/Hull
- Aviation
- Administration/Supply/Medical
- Technical
- All Navy

Detailed computations for the primary allowances are given in Table 4.2. Summary statistics, excluding base pay, are given in Table 4.3.

Marine Corps

The pay and allowance entitlements estimates for Marine Corps enlistees were obtained from the Marine Corps Headquarters Master File (HMF). This file contains one record for each individual under Marine Corps jurisdiction including the members of the Corps and personnel from other Services assigned to the Marine Corps. The file is a duplicate of the MMS portion of the JUMPS/MMS computer file which is maintained at the Central Data Base of the Marine Corps Automated Services Center in Kansas City. The JUMPS/MMS record consists of 2400 characters. The MMS portion (1200 characters) contains most of the data elements contained in the satellite file. The remaining 1200 characters contain JUMPS pay data. The HMF is sent to HQMC on a weekly basis. The data for the model were taken from the file for the week of January 24, 1977.

The data were broken down by occupational area and rank. The occupational fields were grouped into four areas:

- Aviation
- Ground combat
- Ground support, technical, and communications
- All other

Within each of these areas, counts were made to determine by rank the number of recipients of each category of special pay and, within that category, the type of pay being received. The HMF has eight fields which contain this

Table 4.2

DETAILED COMPUTATIONS OF NAVY WEIGHTED AVERAGE MONTHLY PAY AND ALLOWANCES

Personnel Community	Grade	BAQ w/dep	BAQ wo/dep	BAQ-SSH	Partial BAQ	ΣBAQ	FORDU	SEADU	ΣSPDU	Base Rations	RSSS	LVRAT	BAS	Rations Commuted	ΣSubsistence	BMA	SMA	ΣClothing
I	E1	34.24			2.86	37.10	8.00		8.00	44.14	1.59	7.16	7.95		60.84	0.56	0.65	1.21
	E2	14.93	1.80		3.61	20.34	2.74	0.10	2.84	39.61	15.11	6.36	2.39		63.47	4.26	0.33	4.59
	E3	38.89	4.26	0.50	3.78	46.43	3.03	0.06	3.09	35.11	24.65	4.77			64.53	4.56	0.56	5.12
	E4	57.48	6.79	0.54	2.02	66.83	3.08		3.08	25.35	38.16	4.77	0.80		69.08	2.26	4.00	6.26
	E5	115.35	6.74	0.77	0.46	123.32	5.15		5.15	13.06	50.88	3.98	5.57		73.49	0.52	6.27	6.79
II	E1	11.03	0.53		3.53	15.09	0.04	3.58	3.62	48.80	2.39	7.16			58.35	2.05	0.12	2.17
	E2	16.17	0.49	0.01	3.64	20.31	0.11	5.96	6.07	48.65	5.57	3.98		0.80	59.00	4.54	0.13	4.67
	E3	34.52	2.51	0.24	3.08	40.35	0.13	6.28	6.41	44.91	9.54	4.77	0.80		60.02	4.33	0.50	4.83
	E4	39.48	6.06	0.20	2.91	48.65	0.19	8.59	8.78	41.05	12.72	4.77	3.98		62.52	3.61	1.97	5.58
	E5	87.95	6.68	0.50	1.45	96.58	0.33	8.40	8.73	31.12	25.44	3.98	5.57		66.11	0.78	6.02	6.80
III	E1	9.75	0.48		3.58	13.91	0.08	2.06	2.14	48.52	2.39	7.95	0.80		59.66	1.21	0.08	1.29
	E2	15.04	0.75	0.25	3.51	19.55	0.34	1.90	2.24	39.52	18.29	3.98	1.59		63.38	4.65	0.10	4.75
	E3	35.33	5.84	0.22	2.88	44.27	0.46	2.00	2.46	29.75	31.80	3.98	1.59		67.12	4.30	0.68	4.98
	E4	40.93	16.43	0.75	2.21	60.32	0.79	1.91	2.70	19.64	45.32	3.98	1.59		70.53	3.26	2.50	5.76
	E5	100.06	13.82	0.59	0.63	115.10	0.91	1.28	2.19	7.22	60.42	4.77	3.98	0.80	77.19	0.58	6.38	6.96
IV	E1	10.70	10.80		3.22	24.72		5.39	5.39	39.53	14.31	2.39		7.16	63.39	3.59	0.74	4.33
	E2	16.73	5.83	0.12	3.23	25.91	0.49	2.66	3.15	34.55	25.44	3.18	0.80		64.77	4.69	0.06	4.75
	E3	26.11	17.37	0.61	2.46	46.55	0.55	2.42	2.97	26.40	34.98	3.98	1.59	1.59	68.54	4.30	0.94	5.24
	E4	44.11	20.75	0.34	1.98	67.18	1.00	3.45	4.45	20.32	42.14	5.57	2.39	0.80	71.22	2.58	3.42	6.00
	E5	85.92	14.20	1.41	0.64	102.17	1.07	3.49	4.56	13.13	46.91	3.98	8.75	0.80	73.57	0.50	6.41	6.91
V	E1							5.93	5.93	48.36		9.54		0.80	58.70	5.10		5.10
	E2	15.51	0.62		3.32	19.45	0.95	4.02	4.97	41.27	15.11	4.77	0.80		62.75	4.82	0.14	4.96
	E3	24.01	9.29	0.19	3.09	36.58	1.39	4.44	5.83	35.95	22.26	4.77	1.59		64.57	4.73	0.34	5.07
	E4	35.32	11.07	0.60	2.69	49.68	1.25	5.99	7.24	31.99	25.44	3.98	3.98		65.39	3.95	1.44	5.39
	E5	73.87	10.96	0.41	1.48	86.72	1.47	6.14	7.61	23.87	34.19	4.77	6.36		69.19	0.55	6.34	6.89
All Navy	E1	11.02	0.62		3.51	15.15	0.05	3.37	3.42	48.54	3.19	7.16			58.89	1.96	0.13	2.09
	E2	15.91	1.61	0.07	3.60	21.19	0.34	4.40	4.74	44.18	11.13	3.98	0.80	0.80	60.89	4.60	0.12	4.72
	E3	31.92	6.60	0.30	3.16	41.98	0.50	4.38	4.88	37.48	20.67	4.77	0.80	0.80	64.52	4.37	0.59	4.96
	E4	39.88	12.59	0.47	2.63	55.57	0.85	5.21	6.06	29.47	29.42	4.77	3.18		66.84	3.40	2.26	5.66
	E5	87.50	11.33	0.73	1.03	100.59	1.10	4.61	5.71	18.44	42.14	4.77	6.36	0.80	72.51	0.60	6.29	6.89

Table 4.3

SUMMARY OF WEIGHTED AVERAGE MONTHLY PAY AND ALLOWANCES
FOR NAVY FIRST-TERM ENLISTED PERSONNEL

Cost Element

Community	Grade	Quarters	Subsistence	Sea/for. duty	Clothing	Total
Seabee/ Musician	E1	37.10	60.84	8.00	1.21	107.15
	E2	20.34	63.47	2.84	4.59	91.24
	E3	46.43	64.53	3.09	5.12	119.17
	E4	66.83	69.08	3.08	6.26	145.25
	E5	123.32	73.49	5.15	6.79	208.75
Engineer/ Hull/Deck	E1	15.09	58.35	3.62	2.17	79.23
	E2	20.31	59.00	6.07	4.67	90.05
	E3	40.35	60.02	6.41	4.83	111.61
	E4	48.65	62.52	8.78	5.58	125.53
	E5	96.58	66.11	8.73	6.80	178.22
Aviation	E1	13.91	59.66	2.14	1.29	77.00
	E2	19.55	63.38	2.24	4.75	89.92
	E3	44.27	67.12	2.46	4.98	118.83
	E4	60.32	70.53	2.70	5.76	139.31
	E5	115.10	77.19	2.19	6.96	201.44
Admin/ Supply/ Medical	E1	24.72	63.39	5.39	4.33	97.83
	E2	25.91	64.77	3.15	4.75	98.58
	E3	46.55	68.54	2.97	5.24	123.30
	E4	67.18	71.22	4.45	6.00	148.85
	E5	102.17	73.57	4.56	6.91	187.21
Technical	E1	.00	58.70	5.93	5.10	69.73
	E2	19.45	62.75	4.97	4.96	92.13
	E3	36.58	64.57	5.83	5.07	111.08
	E4	49.68	65.39	7.24	5.39	127.70
	E5	86.72	69.19	7.61	6.89	170.41
All Navy	E1	15.15	58.89	3.42	2.09	79.55
	E2	21.19	60.89	4.74	4.72	91.54
	E3	41.98	64.52	4.88	4.96	116.34
	E4	55.57	66.84	6.06	5.66	134.13
	E5	100.59	72.51	5.71	6.89	185.70

information. Two fields are allocated for Incentive Pay. Individuals receiving two types of Incentive Pay are counted in both types, since no distinction was made in this program for first or second type of incentive pay. These data are contained in characters 275-277 and 278-280. These fields contain a three-digit code which is left justified. The remainder of the special pays—Proficiency Pay, Special Pay, Hostile Fire Pay, Basic Allowance for Subsistence, Basic Allowance for Quarters, and Sea or Foreign Duty Pay—are contained in single-character fields from character 281 to 285 and character 389, respectively.

The counts were then converted to fractions of all enlistees in a grade-occupational area combination and multiplied by the appropriate monthly or daily entitlement, as shown in Table 4.1. The detailed average entitlements calculations for the several grade-occupational area combinations are given in Table 4.4. The summary data by type of entitlements are given in Table 4.5. This table also shows the weighted average cost for all Marine Corps personnel combined across occupational areas.

TRAINING COSTS

Navy

U.S. Navy formal school costs are derived from a cost information system developed by the Chief of Naval Technical Training. These data for FY 1975, together with additional data on recruit training costs, were provided to this study by CNTECHTRA (the Office of the Chief of Navy Technical Training).

As with the data on military pay and allowances, the Navy ratings are classified into five groups:

- Seabee/Musician/Other Miscellaneous
- Engineer/Deck/Hull
- Aviation
- Administration/Supply/Medical
- Technical

Within each of these groups, the per (equivalent) graduate cost (total or direct) of A-School training is calculated and a weighted average cost for the group derived. (The user is cautioned that "direct cost," as an economic variable, is not necessarily the same as "variable cost" and is definitely not the same as "marginal cost.")

Table 4.4

MARINE CORPS SPECIAL PAY AND ALLOWANCES ESTIMATED FROM ENTITLEMENTS OF
1 MARCH 1977

Community	Grade	Incentive			ProPay	Subsistence			Quarters				Sea/Foreign duty
		Crew member	Non-crew member	Parachute duty		BAS + Comrats	On Base	BAQ w/dep	INAD Qtrs	BAQ w/o dep	Partial BAQ	Σ Qtrs	
A V	E1	.00	.00	.07	.07	4.33	52.40	56.81	6.10	.02	.18	9.99	.17
	E2	.15	.10	.03	.28	8.13	49.83	57.96	8.35	.13	.56	12.92	.42
	E3	.68	.51	.00	1.19	21.57	40.45	62.02	17.72	.73	1.36	23.48	1.92
	E4	2.65	.54	.00	3.19	.05	33.56	65.20	29.51	1.34	5.98	39.91	3.14
	E5	4.19	.46	.01	4.66	1.66	16.37	72.42	56.13	2.51	19.74	79.88	2.70
G R O M U B N A D T	E1			.02	.02	2.44	53.80	56.24	5.74	.09	.48	10.00	.91
	E2			.05	.05	5.45	51.69	57.14	7.64	.15	.83	12.50	2.12
	E3			.19	.19	11.04	47.79	58.83	12.02	.39	2.28	18.51	2.91
	E4	.02	.02	.43	.47	20.08	41.48	61.56	23.42	.57	5.06	32.46	2.92
	E5	.02	.06	.34	.42	3.54	24.49	68.91	47.68	.96	16.23	67.06	3.17
G S R U O P U P N O D R T	E1			.06	.06	3.66	52.95	56.61	6.66	.15	.42	10.89	.68
	E2			.13	.13	7.08	50.56	57.64	7.82	.25	.67	12.60	1.51
	E3		.01	.30	.31	14.25	45.55	59.80	13.16	.61	1.94	19.53	2.67
	E4		.01	.25	.26	.05	37.05	63.48	23.01	1.01	5.57	32.89	2.75
	E5	.04	.03	.15	.22	1.95	19.66	70.99	47.99	1.57	17.63	69.01	2.60
O T H E R	E1				.00	1.44	54.48	55.92	4.01	.02	.06	7.86	.16
	E2				.00	7.87	50.01	57.88	7.57	.21	.53	12.20	1.11
	E3	.01	.01	.03	.05	18.69	47.46	61.15	14.63	.66	3.00	21.98	2.33
	E4	.01		.04	.05	31.62	33.42	65.04	26.17	1.29	7.50	38.02	2.30
	E5	.01	.02	.06	.09	3.20	15.90	72.62	54.54	1.66	21.13	78.84	2.13

Table 4.5

SUMMARY OF WEIGHTED AVERAGE MONTHLY PAY AND ALLOWANCES
FOR MARINE CORPS FIRST-TERM ENLISTED PERSONNEL

Cost Element

Community	Grade	Incentive	Pro Pay	Subsistence	Quarters	Sea/for. duty	Total
A V I A T I O N	E1	.07		56.81	9.99	.17	67.04
	E2	.28		57.96	12.92	.42	71.58
	E3	1.19		62.02	23.48	1.92	88.61
	E4	3.19	.05	65.20	39.91	3.14	111.49
	E5	4.66	1.66	72.42	79.88	2.70	161.32
C O M B A T	E1	.02		56.24	10.00	.91	67.17
	E2	.05		57.14	12.50	2.12	71.81
	E3	.19		58.83	18.58	2.91	80.51
	E4	.47	.07	61.56	32.46	2.92	97.48
	E5	.42	3.54	68.91	67.06	3.17	143.10
C O M S U P	E1	.06		56.61	10.89	.68	68.24
	E2	.13		57.64	12.60	1.51	71.88
	E3	.31		59.80	19.53	2.67	82.32
	E4	.26	.05	63.48	32.89	2.75	99.43
	E5	.22	1.95	70.99	69.01	2.60	144.77
O T H E R	E1			55.92	7.86	.16	63.94
	E2			57.88	12.20	1.11	71.19
	E3	.05		61.15	21.98	2.33	85.51
	E4	.05	.06	65.04	38.02	2.30	105.47
	E5	.09	3.20	72.62	78.84	2.13	156.88
A L L M C	E1	.02		56.13	9.12	.46	65.73
	E2	.08		57.50	12.47	1.51	71.56
	E3	.30		60.06	20.27	2.58	83.21
	E4	.82	.06	63.71	35.43	2.75	102.77
	E5	1.21	2.25	71.25	73.50	2.63	150.84

Equivalent graduates are then calculated as:

$$\text{Graduates} = (\text{Work Units} \times 4.33 / \text{Course Length})$$

where a work unit is essentially one student month. The total cost per equivalent graduate is then calculated as:

$$\text{Total Cost/Graduate} = \text{Total Cost/Equivalent Graduates.}$$

The direct cost is estimated by subtracting the allocated department, division and command overhead costs. There is an implicit assumption in these computations that a school seat is available. Clearly, if no seat is available, additional costs are incurred in waiting for a seat to become available or in starting a new section.

Cost data for the A-Schools are given in Table 4.6-4.10. Cost data for recruit and apprentice training are given in Table 4.11.

C-School costs are not classified into rating groups. They will not automatically be included in the attrition cost calculations. They will, however, be available to the user of the attrition cost model as an optional manual input. These C-School costs are included as Appendix C.

It is noted that the school costs included in these calculations are intended by CNTECHTRA to include all OM&N, MPN, OPN and APN costs, but exclude depreciation or amortization of major equipment and facilities. They also include student pay and travel costs.

Marine Corps

Estimating training costs for the Marine Corps presents difficulties not experienced in the Navy data. It is easy to see, on examination of published data, that the Army, Navy and Marine Corps use quite different methods for estimating direct or variable costs. This presents problems in dealing with Marine Corps training costs since a large number of Marine Corps MOSs' advanced individual training is provided by other Services. To estimate total and direct training costs for the Marine Corps, data were used from CNTECHTRA, as in the preceding section, from the Army's Military Occupational Specialty Training Cost Handbook and from the Marine Corps' Formal Schools Course Level Costing Report.

The consolidated data from these three sources are shown in Tables 4.12-4.15. While there are obvious difficulties in combining these data, it is seen that, in terms of numbers of trainees, most of the training is still done by the Marine Corps (except for aviation specialties). It is not surprising, therefore, that the weighted average training costs

Table 4.6

FY75 A-SCHOOL COST PER EQUIVALENT STUDENT GRADUATE

Group I

Seabee/Musician/Miscellaneous

Rating	Cost	Work units	Cost per graduate		Course length weeks
			Total	Direct	
MU	4,298,049	4253	5597	3681	24.0
EA	392,559	380	2908	2649	12.2
CE	801,022	684	2270	2092	8.4
EO	2,845,973	2045	2813	2611	8.7
CM	1,220,653	1307	2931	2639	13.6
BU	1,809,324	1946	2000	1847	9.4
SW	464,162	436	2162	1975	8.8
UT	2,380,172	2226	3146	2610	12.6

Total equiv grads - 4580

Avg direct cost/A-School grad - 2568

Weighted Avg A-School course length - 12.5

Source of basic data: CNTECHTRA, Per Capita Cost-to-Train Report

Table 4.7

FY75 A-SCHOOL COST PER EQUIVALENT STUDENT GRADUATE

Group II

Engineer/Deck/Hull

Rating	Cost	Work units	Cost per graduate		Course length weeks
			Total	Direct	
QM	2,462,005	1379	2472	924	6.0
SM	1,985,235	1107	2048	953	6.0
OS	7,392,522	6301	3791	3497	14.0
EW	1,031,378	898	5566	3928	21.0
STG	2,109,660	1137	2569	1830	6.0
STS	2,944,920	1557	6547	4699	15.0
TMM	2,368,458	1000	4373	1557	8.0
GMM	2,971,984	2591	3017	2660	11.4
GMT	2,971,984	2591	3017	2660	11.4
GMG	2,971,984	2591	3017	2660	11.4
FTG	9,572,150	7055	4164	3919	13.3
FTM	9,572,150	7055	4164	3919	13.3
FTB	9,572,150	7055	4164	3919	13.3
MN	805,663	575	4527	2908	14.0
EN	566,025	86	4557	4484	3.0
MR	1,419,580	1403	2662	1915	11.4
BT	2,576,830	1153	1547	1422	3.0
EM	6,037,159	5614	2281	1970	9.3
IC	2,528,018	2229	2356	1764	9.0
HT	1,373,401	1347	941	515	4.0

Total equiv grads - 16,764

Avg direct cost/A-School grad - 2242

Weighted Avg A-School course length - 9.4

Source of basic data: CNTECHTRA, Per Capita Cost-to-Train Report

Table 4.8

FY75 A-SCHOOL COST PER EQUIVALENT STUDENT GRADUATE

Group III

Aviation

Rating	Cost	Work units	Cost per graduate		Course length weeks
			Total	Direct	
ADR	395,166	284	2151	1780	6.7
ADJ	3,920,824	3222	1966	1578	7.0
AT	10,565,239	8608	4192	3570	14.8
AX	10,565,239	8608	4192	3570	14.8
AW	2,704,852	2121	3473	3002	11.8
AO	3,205,222	2685	2479	2054	9.0
AQ	10,565,239	8608	4192	3570	14.8
AC	2,865,317	1730	5351	3480	14.0
ABE	2,392,336	1138	4458	3744	7.6
ABF	784,349	523	1730	1261	5.0
ABH	1,126,868	680	1759	1327	4.6
AE	6,028,312	4891	3129	2690	11.0
AMS	3,559,147	2999	2355	1875	8.6
AMH	2,984,681	2376	1971	1592	6.8
AME	1,668,957	1344	2522	2030	8.8
PR	1,588,535	1256	3211	2076	11.0
AG	1,564,233	1027	5272	3964	15.0
TD	366,186	173	3517	2854	7.2
AK	732,577	711	1617	1301	6.8
AZ	827,034	867	1541	1224	7.0
ASE	695,181	448	3295	2660	9.2
ASH	443,959	281	3464	2808	9.5
ASM	651,415	421	3392	2737	9.5
PH	1,494,251	1014	3741	1839	11.0

Total equiv grads - 16,365

Avg direct cost/A-School grad - 2497

Weighted Avg A-School course length - 9.7

Source of basic data: CNTECHTRA, Per Capita Cost-to-Train Report

Table 4.9

FY75 A-SCHOOL COST PER EQUIVALENT STUDENT GRADUATE

Group IV

Administration/Supply/Medical

Rating	Cost	Work units	Cost per graduate		Course length weeks
			Total	Direct	
SH	428,399	455	869	624	4.0
PC	206,115	213	1117	755	5.0
RM	9,491,777	9917	2962	2027	14.0
CTT	1,688,028	1218	2479	1909	8.8
CTA	438,012	322	2543	1709	8.1
CTM	880,642	566	4309	3074	12.0
CTO	2,780,090	2029	5312	3583	16.8
CTR	2,188,210	1699	2675	1749	9.0
YN	2,629,688	2288	1895	1239	7.0
PN	3,302,793	2619	2108	1215	7.1
DP	1,153,881	879	2424	1774	8.0
SK	2,206,021	2295	1588	1352	7.1
DK	681,009	744	2535	1951	12.0
MS	3,806,294	4003	1755	1283	8.0
IS	452,247	460	2518	1168	11.1

Total equiv grads - 13,710

Avg direct cost/A-School grad - 1604

Weighted Avg A-School course length - 9.4

Source of basic data: CNTECHTRA, Per Capita Cost-to-Train Report

Table 4.10

FY75 A-SCHOOL COST PER EQUIVALENT STUDENT GRADUATE

Group V

Technical

Rating	Cost	Work units	Cost per graduate		Course length weeks
			Total	Direct	
ET	17,758,528	12,884	1813	1670	5.7
DS	3,476,231	2,849	7321	4681	26.0
IM	347,391	275	4956	4277	17.0
OM	302,536	264	4496	3817	17.0

Total equiv grads - 10,407

Avg direct cost/A-school grad - 1839

Weighted Avg A-School course length - 6.6

Source of basic data: CNTECHTRA, Per Capita Cost-to-Train Report

Table 4.11

NAVY RECRUIT TRAINING COSTS BY BUDGET, FY75

Budget	Great Lakes	Orlando	San Diego	Avg/Recruit
		<u>Military Training</u>		
O&MN	264.00	272.00	479.00	337.00
MPN	509.00	367.00	432.00	440.00
PAM	1,109.00	1,090.00	1,050.00	1,080.00
OPN	1.00	0.19	-	0.58
Total	1,875.00	1,730.00	1,962.00	1,859.00
		<u>Apprentice Training</u>		
	AN FN SN	AN FN SN	AN FN SN	
O&MN	50. 49. 50.	61. 60. 60.	45. 44. 45.	50.00
MPN	96. 85. 72.	278. 274. 269.	106. 79. 67.	115.00
PAM	232. 232. 232.	222. 222. 222.	232. 235. 232.	231.00
OPN	29. 1. 1.	1. 1. 1.	- - -	0.12
Total	379. 366. 354.	562. 558. 552.	383. 359. 345.	397.00

Source: Course Costing Branch, Memphis NAS

Table 4.12

FY75 MARINE CORPS ENTRY LEVEL TRAINING COSTS

Group I - Combat MOS's

MOS	Service school	Estimated equiv grads	Cost per Graduate		Course length (wks)
			Total	Direct	
0231	N	60	2518	1168	11.1
03XX	MC	14,140	1476	953	5.0
0431	N	48	3791	3497	14.0
084X	A	498	8482	4416	7.0
1811	A	308	4432	3242	7.0
2111	A	277	3667	2757	8.0
2131	A	39	6761	4811	13.0
2141	MC	67	1632	793	5.0
2142	MC	200	2754	1216	6.0
2144	MC	24	2722	1843	5.0
2161	A	41	17,788	3443	12.0
2171	A	36	20,830	11,421	20.2

Weighted average direct cost - \$1192

Weighted average course length - 5.3 weeks

Source of basic data: Marine Corps Formal Schools Course Level Costing Report
 CNTECHTRA Per Capita Cost-to-Train
 U.S. Army Military Occupational Specialty Training
 Cost Handbook

Table 4.13

FY75 MARINE CORPS ENTRY LEVEL TRAINING COSTS

Group II - Combat Support MOS's

MOS	Service school	Estimated equiv grads	Cost per Graduate		Course length (wks)
			Total	Direct	
1121	MC	117	1983	1165	7.0
1141	MC	227	1582	871	6.0
1142	MC	241	3853	1886	17.0
1161	MC	147	1615	887	7.0
1171	A	2	6506	3224	8.0
1173	A	33	9155	4543	13.0
1316	MC	127	1698	954	6.0
1341	MC	474	2467	1226	10.0
1345	MC	148	2444	1426	9.0
1371	MC	745	1632	918	6.0
1411	A	15	9478	4686	11.0
1421	A	19	9518	5305	11.2
1431	A	33	5804	4472	9.0
152X	A	42	4997	2642	8.0
1531	A	2	23,403	3419	7.0
2531	MC	1579	1770	746	7.0
2532	MC	188	738	380	9.0
2542	MC	681	2130	864	10.5
26XX	N	196	5566	3928	21.0
2811	MC	229	2774	1608	20.0
2814	A	11	5352	2888	8.0
2818	MC	315	2010	1051	8.0
2825	A	5	24,543	12,556	40.0
2826,7,9	N	17	1813	1670	5.7
2828	A	17	14,061	7188	24.0
2841	MC	573	3444	1618	15.2
2871	MC	69	5668	3600	20.0
2881	A	23	25,172	3999	15.0
3052	MC	28	2571	2257	3.2
3061	A	UNK	1647	1371	6.2

Table 4.13 (continued)

Group II - Combat Support MOS's

MOS	Service school	Estimated equiv grads	Cost per Graduate		Course length (wks)
			Total	Direct	
3211	A	UNK	6732	3662	8.0
3241	A	UNK	20,433	9998	26.0
4016	A	UNK	1049	847	4.2
4063	MC	135	3410	1587	9.2
5931,2,3	MC	107	1986	1321	5.5
5934	MC	18	3026	2212	7.0
5935	MC	6	7229	4542	21.8

Weighted average direct cost - \$1198

Weighted average course length - 7.8 weeks

Source of basic data: Marine Corps Formal Schools Course Level Costing Report
 CNTECHTRA Per Capita Cost-to-Train
 U.S. Army Military Occupational Specialty Training
 Cost Handbook

Table 4.14

FY75 MARINE CORPS ENTRY LEVEL TRAINING COSTS

Group III - Aviation MOS's

All Navy A-Schools

(Marine Corps Estimated Graduates Proportional to Navy Graduates Distribution)

MOS	Cost Per Graduate		Course length (wks)
	Total	Direct	
3072	1617	1301	6.8
601X	1966	1578	7.0
602X	1966	1578	7.0
6036	2522	2030	8.8
6042	2522	2030	8.8
605X	1966	1578	7.0
606X	3211	2076	11.0
607X	3295	2660	9.2
6082	1541	1224	7.0
61XX	2151	1780	6.7
65XX	2479	2054	9.0
66XX	4192	3570	14.8
7011	4458	3744	7.6
7311	5351	3480	14.0

Weighted average direct cost - \$2497

Weighted average course length - 9.7 weeks

Source of basic data: Marine Corps Formal Schools Course Level Costing Report
 CNTECHTRA Per Capita Cost-to-Train
 U.S. Army Military Occupational Specialty Training
 Cost Handbook

Table 4.15

FY75 MARINE CORPS ENTRY LEVEL TRAINING COSTS

Group IV - Other MOS's

MOS	Service school	Estimated equiv grads	Cost per Graduate		Course length (wks)
			Total	Direct	
0121	MC	389	2018	1086	5.3
0131	MC	272	1888	1036	5.5
0161	A	UNK	1049	847	4.2
3311	MC	214	2163	1219	11.2
3371	MC	522	2494	1348	13.5
3421	MC	259	1843	1111	8.7
3431	MC	24	892	527	4.3
3451	MC	41	3288	2470	9.7
3513	A	23	4373	2867	8.0
3521	MC	1747	1971	1072	10.7
4111	A	50	4541	2789	8.7
4312	A	36	5925	3952	10.0
4313	A	4	8745	5479	8.0
442X	MC	118	2755	1359	8.5
46XX	N	39	3741	1839	11.0
55XX	MC	200	1989	1351	13.2
5811	A	549	3014	1572	8.0
5831	A	342	3014	1572	8.0

Weighted average direct cost - \$1273

Weighted average course length - 9.6 weeks

Source of basi- data: Marine Corps Formal Schools Course Level Costing Report
 CNTECHTRA Per Capita Cost-to-Train
 U.S. Army Military Occupational Specialty Training
 Cost Handbook

for an occupational community fall in the general range of costs of the courses conducted by the Marine Corps itself. An estimate of the cost of basic training for the Marine Corps is provided by the training report compiled by the Interservice Training Review Organization (ITRO). The estimated direct cost of basic training is \$2249.

ACCESSION COSTS

These costs represent initial investments that can be of considerable magnitude, depending on the enlistment group in question. Unfortunately, the computation of accession costs is not an exact science; for the most part, considerable judgment required to develop cost factors which are suitable for the decision-oriented nature of the attrition costing model. For the purposes of the costing model, two cost approaches are utilized, depending on the enlisted group being analyzed.

Average Variable Cost

For both Navy and Marine Corps enlistments, this cost is estimated to be \$875 per accession. This cost factor is applied to those enlistment groups which are considered to be administratively controlled by the Services. This includes all females, male non-high school graduates, and male high school graduates in mental group IV. The \$875 cost factor is composed of the variable portions of recruiting, advertising and AFES processing.

Marginal Accession Costs.

This cost concept is applicable when the demand for enlistees of the type being analyzed is considered to be greater than the apparent supply. By various statistical methods, it has been determined that the male high school graduate in mental groups I-III is supply-limited to the Navy and Marine Corps. Should either of these two Services desire to increase their enlistment intake of this group, an increment in the accession budget must be made which is on order of magnitude larger than the average expenditures for all types of enlistees already recruited.

A recent study by GRC^{*} has provided the basic data necessary to estimate these marginal recruiting costs. That study's results imply marginal recruiting costs for high school diploma graduate, mental group I-III to be \$1970

^{*}Sustaining Volunteer Enlistments in the Decade Ahead: The Effect of Declining Population and Unemployment, App B, Draft Final Report, March 1977, prepared for Office Assistant Secretary of Defense (M&RA).

for Navy and \$2600 for Marine Corps. For high school diploma graduate, mental group IIIBs, the marginal cost of recruiting mental group I-III in toto is used since IIIBs are not a preidentifiable target group; for every IIIB recruited, some numbers of (at least as desirable) I-IIIs will also be obtained. On this basis, the marginal cost for IIIBs for the Navy is \$1570 and for the Marine Corps, \$1700.

The results obtained in the preceding paragraph are summarized in Table 4.16. The variable AFEES cost is estimated to be \$130 and is contained in all entries in the table.

Table 4.16

RECRUITING AND ACQUISITION COSTS

	<u>Navy</u>	<u>Marine Corps</u>
Male, HSG, I-III A	\$2100	\$2730
Male, HSG, IIIB	\$1700	\$1830
Male, HSG, IV	\$ 875	\$ 875
Male, NHSG	\$ 875	\$ 875
Female, HSG	\$ 875	\$ 875

CORRECTIONS AND JUDICIAL

In addition to the normal costs associated with recruiting, training and employing any enlistee there are costs, which can be identified, that apply specifically to problem enlistees and attrition losses. A study by GAO* estimates that the Navy and Marine Corps spend an average of \$555 (in FY77 dollars) to apprehend and return a deserter. These costs include payment to local law enforcement agencies and to the FBI, travel and salary costs for providing escort for the deserter back to the base and the cost of processing the deserter back into the base. This cost does not include the actual cost of any judicial action that may be taken. Estimates of these cost elements are shown in Table 4.17.

* General Accounting Office, "Millions Being Spent to Apprehend Deserters Most of Whom are Discharged as Unqualified for Retention," January 31, 1977.

Table 4.17

COSTS OF RECOVERING DESERTERS

Payments to Local Law Enforcement Agencies	\$ 9.20
Payment to the FBI	\$131.50
Military Escort Pay	\$ 51.40
Military Escort Travel	\$ 31.20
Administrative Processing	\$331.70
Total	\$555.00

There are other significant costs directly related to adverse losses, whether or not they were deserters. In a study by the staff of the Chief of Naval Operations,* data obtained from the Navy Judge Advocate General provided information on the relative frequencies and costs of various administrative and judicial actions involved with adverse losses. Table 4.18 summarizes these NJAG data.

Table 4.18

FREQUENCY AND COST OF ADMINISTRATIVE AND JUDICIAL ACTIONS RELATED TO ADVERSE LOSSES

	<u>Frequency (%)</u>	<u>Cost (\$)</u>
Administrative Discharge		
with board	15.7	324.70
no board	62.8	70.98
Summary Court Martial	8.5	94.16
Special Court Martial		
BCD	1.0	740.89
no BCD	11.6	302.72
General Court Martial	<u>.4</u>	<u>1857.65</u>
Weighted Average		153.50

* Chief of Naval Operations (OP-964D) "Analysis of Proposals for the Timely Release of Individuals Who Are Unsited by Choice and/or Performance for Naval Service," September 1975.

One additional cost element can be added to these results. A review of the CNO study combined with the results of Appendix A of this report indicate that there are, on average, at least two instances of Non-Judicial Punishment associated with an adverse loss at a cost of \$22.10 per instance. Adding this to the average cost in Table 4.18 yields a final cost of \$197.70.

One final consolidation of these data is required by the nature of the attrition data discussed in Chapter 3. Since deserters are not identifiable in the attrition data there is no desertion rate against which the \$555 recovery cost may be applied. However, reviewing the GAO and CNO studies with the results of Appendix A suggests that about 25% of all adverse losses have involved desertion, at one time or another. Accepting this estimate then, the average recovery and processing cost of an adverse loss is estimated:

$$.25 (\$555.00) + \$197.70 = \$336.45$$

OTHER COSTS

The preceding sections have derived the major cost elements for enlisted first-termers. There are other, lesser costs that can be included in the Attrition Cost Model. Unless otherwise indicated, the source of these data is Pers-2122 and the Billet Cost Model. Marine Corps costs for these cost elements are assumed to be the same as Navy costs.

Travel

Travel costs for the first three pay grades not included in acquisition and training cost estimates previously derived, are, on average, less than \$1 per month. Costs for grades E-4 and E-5 are as shown in Table 4.19.

Medical

If the data were available, one would prefer an explicit derivation of the variable medical costs, rather than an allocation of total medical system costs. Clearly, estimates of the value of medical services to the enlistee are a substantial overstatement of the cost of providing these services. Nevertheless, the best available data allocates the total medical system cost over the enlistees and their dependents. The results

of these allocations by pay grade are shown in Table 4.19. A review of the Navy medical system budget shows that 46% of the funds are spent for non-defense medical facilities, including Champus. These non-defense costs can be reasonably treated as variable costs to DOD. The remaining 54% are in-service system costs. Most of this cost must be treated as fixed overhead generated by combat readiness requirements. No estimate of the portion of the in-service costs which is variable is available; however, in Chapter 6, it will be assumed that 25% of the in-service medical system costs are variable costs. In light of this assumption, the medical system costs used in Chapter 6 will be 60% of the costs shown in Table 4.19.

Navy Incentive Pays

Incentive pays for the Marine Corps were discussed in a previous section. For the Navy, the Military Pay Stratified Sample provided data only on Sea Duty and Foreign Duty pays. Additional estimates for other incentive pays for the Navy are available from Pers-2122 and are shown in Table 4.19. These data (flight pay, submarine duty, etc.) cannot at this time be broken out by personnel community.

Table 4.19

OTHER FIRST TERM ENLISTED COST ELEMENTS (Cost per month) Cost Element

<u>Pay Grade</u>	<u>Travel</u>	<u>Medical</u>	<u>Navy Other Incentive Pay</u>
E-1	\$ -	\$24.25	\$.41
E-2	-	25.92	2.26
E-3	-	29.33	4.37
E-4	21.92	35.17	12.61
E-5	23.25	54.92	17.37

5 FIRST-TERM UTILITY DATA

As discussed in Chapter 2, the Attrition Cost Model requires data specifying the value to the Navy of the first-termers. In this chapter, the three optional forms of this specification available to the user in the model are discussed:

- Utility equal to one,
- Utility proportionate to cost, and
- Utility derived from measures of learning and productivity.

UTILITY OPTIONS

Utility Equal to One

This option allows the user to exercise the assumption that utility is irrelevant to the analysis. Utility is set equal to one for every month of service after the completion of formal training for every classification of first-termers.

Utility Proportionate to Cost

This option specifies that utility is measured directly by average cost as a function of average grade. The utility of a high-school graduate mental category I-IIIA recruit is set equal to 1.0 at the end of the 48th month. All other classifications of recruits are scaled to this reference.

Utility Derived From Measures of Learning and Productivity

Under this option, the value of the individual in month t ($0 \leq t \leq 48$), relative to the value of the individual in month 48, is derived from measures of on-the-job proficiency. The value of the technical performance of the individual at the completion of his first term of service is defined as 1.0. Value of the enlistee during his first 48 months of service is relative to the value at the completion of the 48th month. This value is referred to as the utility of the individual in month t : U_t . The plot of U_t is referred to as the utility curve.

OTHER CONCEPTS OF UTILITY

This use of the term differs from others in the fledgling literature. For example, Campbell, O'Connor, and Peterson of Decisions and Designs^{*} (hereinafter referred to as D&D) refer to "accrued utility of Navy enlisted personnel" as "the relative contribution to Navy missions of the accrued experience of enlisted personnel" within the context of a Sixth-Fleet battle-ready scenario. In contrast to the GRC study, which bases value comparisons upon the performance of a first-term completor specific to the particular rating, the D&D study bases this comparison on the relative dispensability of the rating for effective combat operations. Thus D&D gives its measure of the utility of a first-termers at the end of his term as $\approx 40^{**}$ if rated as a Sonar Technician or as ≈ 15 if rated as a Journalist. However, in the GRC study both enlistees — if average progressor-survivors — would have utilities of 1.0 within their ratings at the completion of 48 months of service.

Schmid and Hovey (hereinafter referred to as B-K)^{***} refer to utility as the accrual of value to the Navy, on a scale of 0-100, by the average enlisted man serving at a given pay grade and length of service. The B-K study covers the entire career of the enlistee. During his first term, a segment relatively unimportant to the B-K study, overall utility to the Navy is judged in terms of leadership components, supervisory skills, and doing-things-the-Navy-way, as well as technical performance in a rating. The measure of value, however, should change over the career path of an enlistee. The GRC study assumes that the value of an enlistee during his first term should be measured primarily by his useful output, his technical performance in a rating. The value added from other components comes largely after achieving journeyman status and competence. Thus, the B-K study supports a nearly linear advance in utility during the first 4 years, combining all the factors of value to the Navy; the GRC study assumes a

^{*} Vincent Campbell, Michael F. O'Connor, and Cameron R. Peterson, "Accrued Utility of Navy Enlisted Personnel," Decisions and Designs, McLean, Va., 1976.

^{**} On a scale of 0-100.

^{***} John R. Schmid and Richard K. Hovey, "Utility Theory and Optimization in Military Personnel Management," B-K Dynamics, Rockville, Md., 1975.

logistic increase in value as the enlistee fulfills his primary obligation to learn and perform journeyman on-the-job skills during his first term.

APPROACH

Any approach to the description of Naval first-term utility currently suffers from a paucity of necessary and sufficient data. Nonetheless, the description of a utility-curve for use by the GRC attrition cost model can be estimated from survey measures of the technical performance of Naval first-term enlistees. During the initial 48 months, the new enlistee is learning his job. He does this partly in A-school or general fleet and partly in on-the-job training as he strikes for a rating. At the completion of his first term, the average progressor-survivor is considered to be fully technically competent, a journeyman in his rating. Testimony indicates that increases in overall utility to the Navy beyond the 48th month accrue in the main by the exercise of managerial skills and supervisory responsibilities within the specific context of the Naval environment. Thus, the first-term enlistee appreciates in worth to the Navy largely through his acquisition of a usable productive skill which he largely perfects within his first 48 months of service.

LEARNING CURVES

For these reasons, this study selects the "S"-shaped logistic curve, illustrated generically in Fig. 5.1, as a class to describe the utility to the Navy of the productive performance of the first-term enlistee.



Fig. 5.1—Logistic Curve

This assumption is, of course, supported by the rather low magnitude of output expected from a recruit during his first months of schooling or general fleet duty. Horowitz and Weiher* lend survey support to this with information on the "time paths of skill acquisition—the learning curves—for non-A-school grads and for A-school grads" which they gathered from over 1900 senior enlisted men. Figure 5.2 describes the envelopes of the learning curves for eight DOD occupational areas surveyed by CNAI.

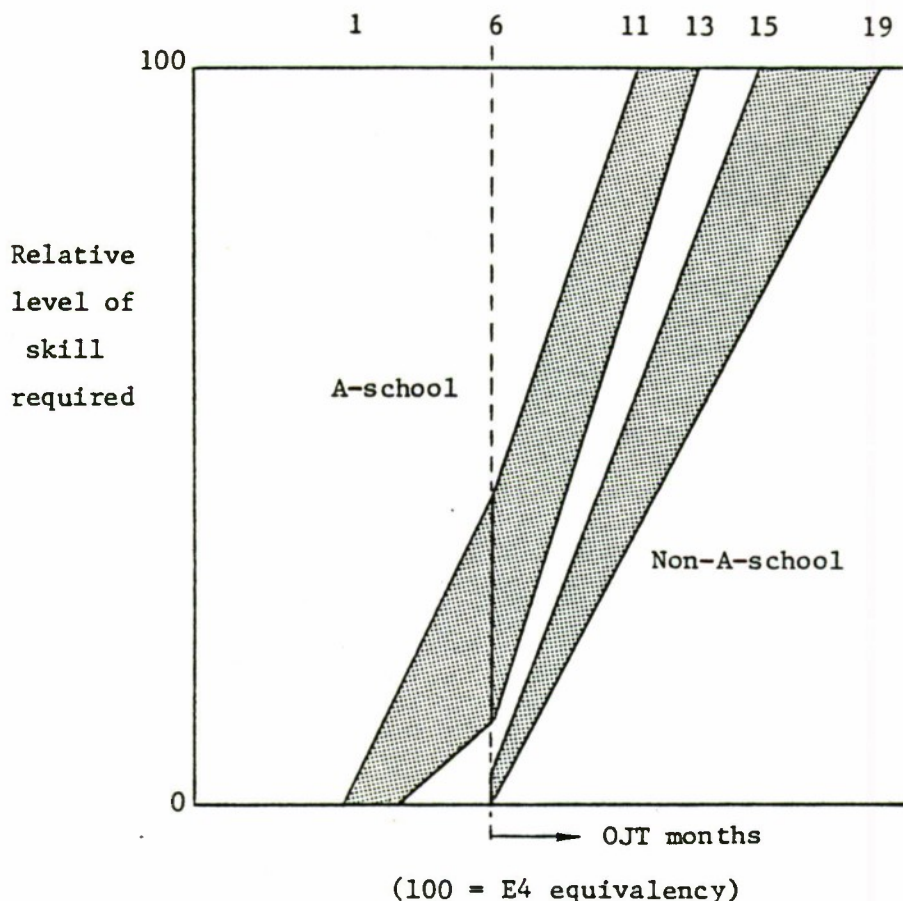


Fig. 5.2—Learning Curves for DOD Occupational Groups, from CNAI

*Rodney Weiher and Stanley A. Horowitz, "The Relative Costs of Formal and On-The-Job Training for Navy Enlisted Occupations," Center for Naval Analyses, Arlington, Va., 1971. (Hereinafter referred to as CNAI.)

The left-hand band shows the time path of increasing competency during on-the-job training for A-school graduates; the right-hand band, for non-A-school graduates. OJT is measured from month 6. The scale 0-100 measures, from the chief petty officers' observations, the knowledge of the striker in relation to what he must know to successfully pass his 3rd class exam. For A-schoolers, the learning band has been estimated prior to month 6; however, for non-A-schoolers the deviation in the data is too large to estimate a path from date of accession. Hence, month 6 as the start of OJT for non-A-school grads is an arbitrary average.

Although the majority of the CNAI curves are extremely linear, a few exhibit a logistic shape by themselves, particularly for non-A-schoolers, which under the assumption is to be expected. For A-schoolers, the slope of the curve until month 6 from either months 1 or 2 remains less than the slope beyond 6 months. The slopes of the two sections of the curve approach equality only at the limit, as expected with the logistic curve family. This reflects that the initial increase in competence generally occurs at a lower rate than later increases within the middle of the curve.

TECHNICAL COMPONENTS OF RATINGS

Estimates of the minimum technical component of a rating grade level are given by B-K. A question in B-K's Delphi Round I was directed to the DPPO programs:

"In the past, the Navy has...recruited men at advanced paygrades based upon their civilian experience. Some of these programs have been called Direct Procurement Petty Officer programs. In general, these programs have assumed that the men had the technical qualifications for the paygrade and could learn the "Navy way" on the job. Please indicate below your judgments as to the value (on a scale of 0-100) of such men at the time of recruitment. In other words, we are asking for judgments about the value of a man at a specific paygrade, but with zero years of (Navy) experience."

<u>DPPPO grade</u>	<u>Value (0-100)</u>
E3	16 (10)
E4	27
E5	41
E6	49
E7	51
E8	52.5
E9	56

Fig. 5.3 —Value of DPPPO Enlistees at $t = 0$

The GRC study has substituted the opinions of the chief petty officers in CNA1 for the value of a DPPPO E3 (as represented by an enlistee straight out of A-school), reducing the B-K figure from 16 to 10.

MEASURES OF JOURNEYMEN PROFICIENCY

Anecdotal evidence, the D&D study, and the work on personnel effectiveness by Horowitz and Sherman^{*} all suggest the knee in the logistic-shaped curve to be in the E5/E6 region. To quote a respondent in the B-K study:

"Jump (in value) at E4 and E5 is due primarily to experience as a worker. E6 added value is in the supervisory skills primarily. Additional value of E7 is due to leadership development and his acceptance as 'the Boss' in a shop."

Figure 5.4, from B-K, represents survey responses to questions concerning the relative value of a rating at differing lengths of service (in years). The points on the "Value" axis represent evaluations of first-termers recruited under the Direct Procurement Petty Officer program at the respective grade levels. The first angle in each curve indicates the length of service at which that grade is judged to reach maximum competency and value; the second indicates the point at which value for that grade begins to decline.

^{*} Stanley Horowitz and LCDR Allan Sherman, "Maintenance Personnel Effectiveness in the Navy," Center for Naval Analyses, Arlington, Va., 1976. (Hereinafter referred to as CNA2.

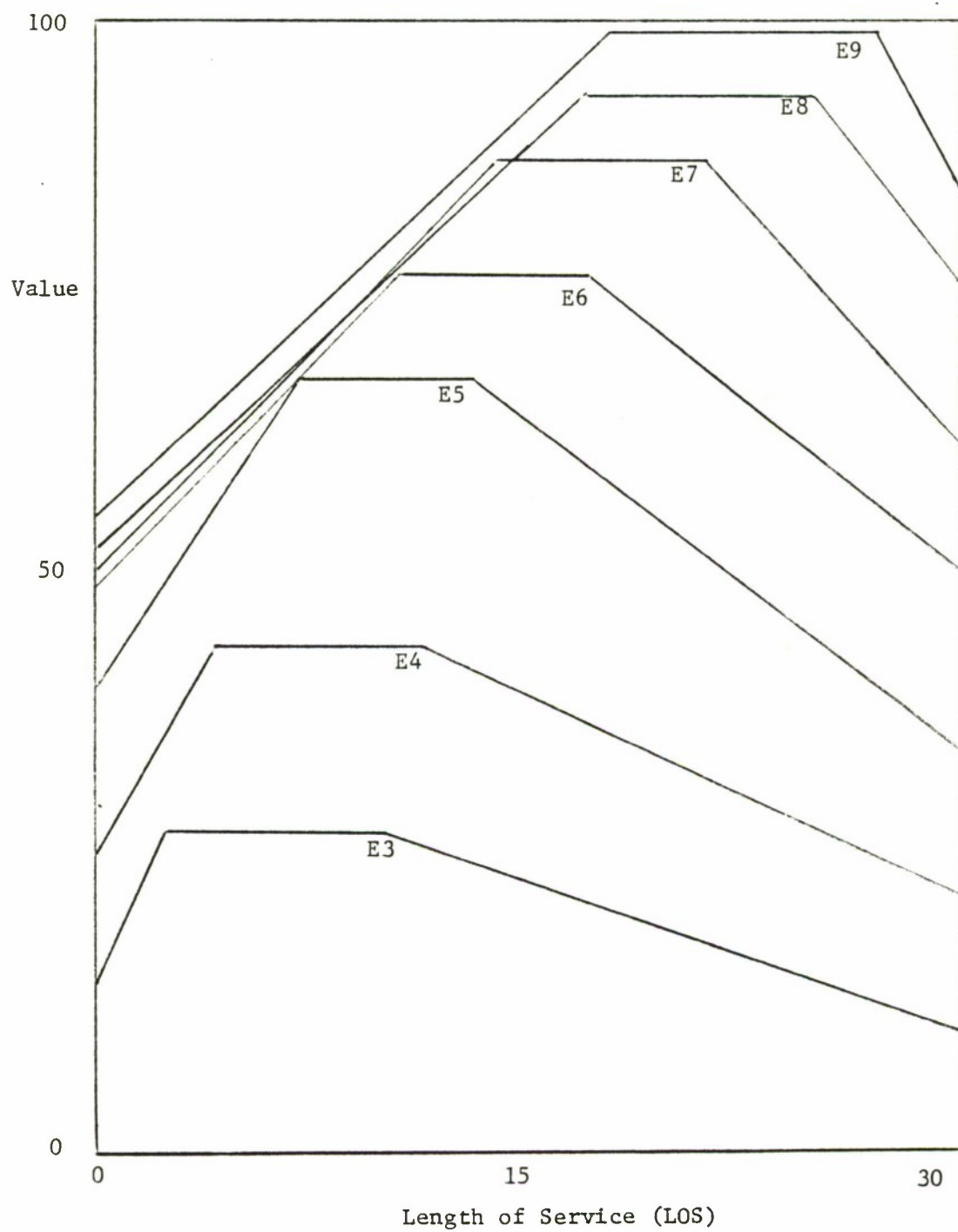


Fig. 5.4—Overall Utility to the Navy of Paygrades
 Points on the "Value" Axis Represent Evaluations of DPPO Programs
 From B-K

As can be seen in Fig. 5.4, responses in B-K suggest the general acceptance of the perception that an E5 possesses the technical competence of an E9, for the entering civilian with an E9's technical ability is seen to be approximately as valuable to the Navy overall as a moderately experienced E5 with 4 to 5 years of service. The different worth to the Navy between an experienced E9 and an experienced E5 is seemingly captured almost entirely by the supervisory and managerial skills of the E9.

Figure 5.5 represents a typical accrued utility curve as presented in D&D. Throughout the D&D utility curves, a break occurs in the linear accrual of utility when the enlistee reaches the E5 or E6 region, suggesting that the bulk of the technical knowledge and skill has been obtained. Throughout the utility curves presented in D&D, the new E5 possesses one-half to three-fourths of the total utility assigned to a specific rating group.

In Fig. 5.6, among the factors advanced to explain the variance in equipment downtime in terms of personnel variables, the CNA2 study shows through regression analysis that it is the fraction of personnel at the E5 level or above which is significant.* For non-Forrest Sherman class destroyers, this occurs at the 5% level; for Forrest Sherman class destroyers it occurs at the 1% level.

This, again, indicates that the average progressor-survivor acquires the majority of his technical competence by the E5 level.

TIME PATHS

Thus, general theoretical reasons suggest a logistic curve to describe the first-term enlistee utility in terms of technical performance. The initial slope, up to the E4 competency level, is forced by CNA1's learning

* Preliminary studies being conducted by Horowitz at CNA indicate that this relation may be highly dependent upon the particular rating being evaluated. At the contract level of effort and using the best available data, the GRC study assumes that this relation holds for the "typical" rating. However, see the recommendations for further study in Chap. 8.

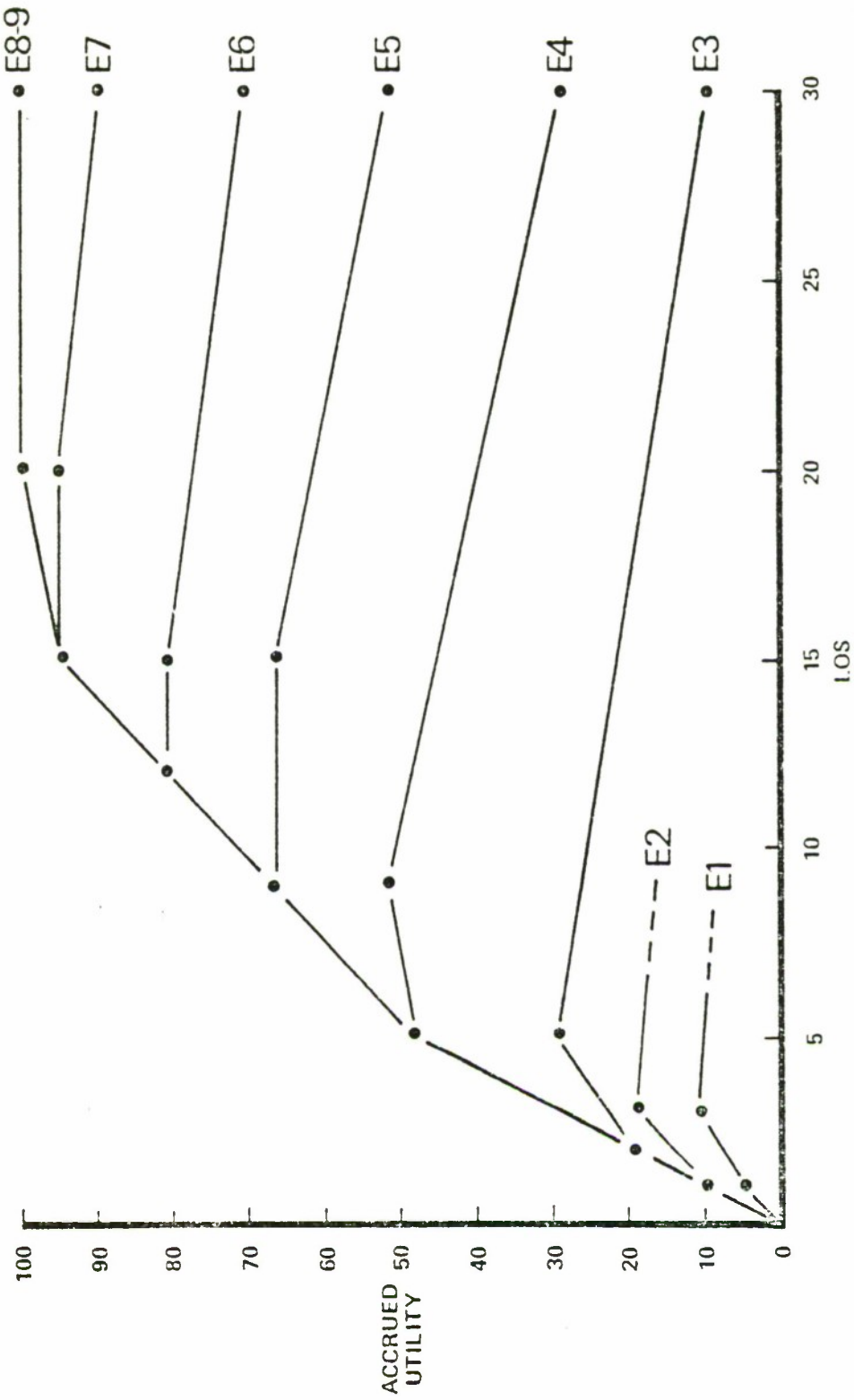


Fig. 5.5 —Accrued Utility by LOS and Pay Grade Typical Rating Group
From D&D

	Rating Groups						Total Deck
	<u>BT</u>	<u>MM</u>	<u>FT</u>	<u>GM</u>	<u>TM</u>	<u>ST</u>	
Non-Forrest Sherman Class Destroyers							
Average number of personnel	X	XX	XXXX		X	XXX	XX
Standard deviation of the number of personnel	XX		X			XXX	
Fraction of personnel E4 or above					XX		
Fraction of personnel E5 or above			XXXX XXX			X	XXX
Fraction of personnel E6 or above				XXXX			
Prevalence of primary and secondary NEC's			X				
Prevalence of undesignated personnel		X				XXX	
Forrest Sherman Class Destroyers							
Average number of personnel	XXX	X	XXX		X		XX
Standard deviation of the number of personnel						XXX	
Fraction of personnel E4 or above				XX	XX		
Fraction of personnel E5 or above			XXX				XXXX
Prevalence of primary and secondary NES's			X				
Prevalence of undesignated personnel		X				XXX	
X - enters the equation							
XX - significant at the 10% level							
XXX - significant at the 5% level							
XXXX - significant at the 1% level							

Fig. 5.6 —Personnel Factors and Equipment Down Time
From CNA2

curves. The knee is located in accordance with the sources just mentioned and fitted to the DPPPO levels from B-K. All that is now needed to describe the utility curve is an estimate of the time required to attain the skill level associated with the paygrades E5 and above.

The CNA1 curves decisively influence the forward slope of the first-term utility curve. The utility gradient is thus forced to be much steeper than would be expected under "cost-utility" schemes, which would tend to be defined by average progression in grade.

"In industry, the value of a man working a job may be determined by the prevailing wage for that job. In the military, no direct control is exercised over what is paid to the Navy enlisted man so that what the military pays for labor is not necessarily a measure of the value that is attributed to that labor. Certainly the payscale is not irrational — the Navy must believe an E7 is worth more than an E1 because of the higher pay." — B-K

Thus, the military curve should be expected to lead the average-grade-curve — the Navy pays a wage but, to be rational, pays it only after at least minimum competency has been demonstrated for that paygrade. Of course, in the initial months following accession, there is an exception to this observation as the new recruit enters with a wage greater than zero.

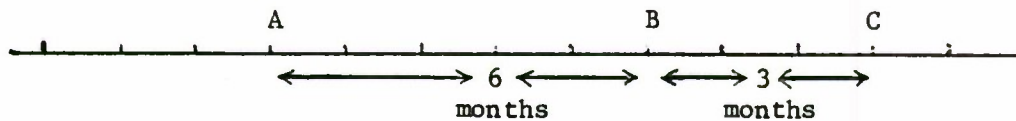
Figure 5.7 shows minimum time-in-service and minimum time-in-rank for advancement during the last few years. Although for policy reasons minimum longevities have been extended, the examinations have not been significantly revised nor have the scores required for passing been raised. Yet there has been no significant change in the pass rates for these examinations. Thus we can say that the Navy officially expects an average progressor to be professionally competent before the minimum eligibility requirements of FY74 have been met. The GRC study assumes that the shape of the learning curve is cohort-independent; no matter when a recruit enters, his learning curve will be isomorphic to recruits entering at any other time.

Figure 5.8 illustrates the institutional delays possible between attainment of a competency level and its recognition in grade advancement. Any test for advancement may be taken up to 3 months before longevity

requirements for that grade have been met. An additional lag is introduced as advancement tests are offered only biannually, in February and August. This second lag provides a 6-month "window" for attainment of proficiency before it is possible to test for that attainment.

	FY74		FY75 & FY76		FY77	
	<u>TIS</u> <u>(years)</u>	<u>TIR</u> <u>(months)</u>	<u>TIS</u> <u>(years)</u>	<u>TIR</u> <u>(months)</u>	<u>TIS</u> <u>(years)</u>	<u>TIR</u> <u>(Months)</u>
E9	13	-	13	-	15	-
E8	11	24	11	24	12	36
E7	8	36	8	36	9	36
E6	4.5	36	6	36	6	36
E5	2.5	24	3	24	3	24
E4	1.5	12	2	12	2	12
E3	1.0	6	1.0	6	1.0	6
E2	.33	8	.33	8	.5	6
E1	-	4	-	4	-	6

Fig. 5.7—Time-In-Service and Time-In-Rank



Month A: last exam offered before minimum longevity requirements can be met

Month B: first exam offered for which minimum longevity requirements can be met

Month C: minimum longevity requirement met

Fig. 5.8—Test-Timing vs Longevity Requirements

ESTIMATED OUTPUT UTILITY CURVES

Thus, leading the FY74 minimum longevities for E5 and above, the utility curve in Fig. 5.10 is estimated. This curve represents the utility of high quality Naval recruits — the high school graduates in mental categories I through IIIA — which comprise over half the first-term population. This recruit's utility is scaled to 1.0 at the 48th month. The utility curves for other classifications of recruits are scaled to this reference curve. Scaling is determined by the proportionate difference between the corresponding average paygrade smoothed curves. These curves are shown in Figs. 5.11 through 5.13.

Figure 5.14 confirms that the utility curve U_t does indeed lie to the left of the average paygrade curve which would arise from the data in App B.

COMMENTS

It may seem surprising that the Naval enlistee is performing at a journeyman level so long before official Navy recognition of this performance by advancement in pay grade. However, Gay's study for the Air Force supplies confirmation of this assertion. Examining OJT training in an occupational area comparable to Navy technical ratings in complexity, Gay asked training supervisors to estimate the time it took for a newly assigned recruit to attain a journeyman's level of competence. (The relevant excerpt from the questionnaire is reproduced in Fig. 5.15.)

Figure 5.16 shows the results of Questions 1 and 3 (VMP, Value of Marginal Product, is a measure of the productivity of a factor of production in Gay's study). To compute the total length of service in Fig. 5.16, add 5 months to the months of OJT. Thus, at 24 months the Air Force enlistee in a technical occupation attains journeyman proficiency, equivalent to a Navy E5 level, just as the utility curve in Fig. 5.10 indicates.

Total First
 Navy Termer
 Utility Technical
 Competence

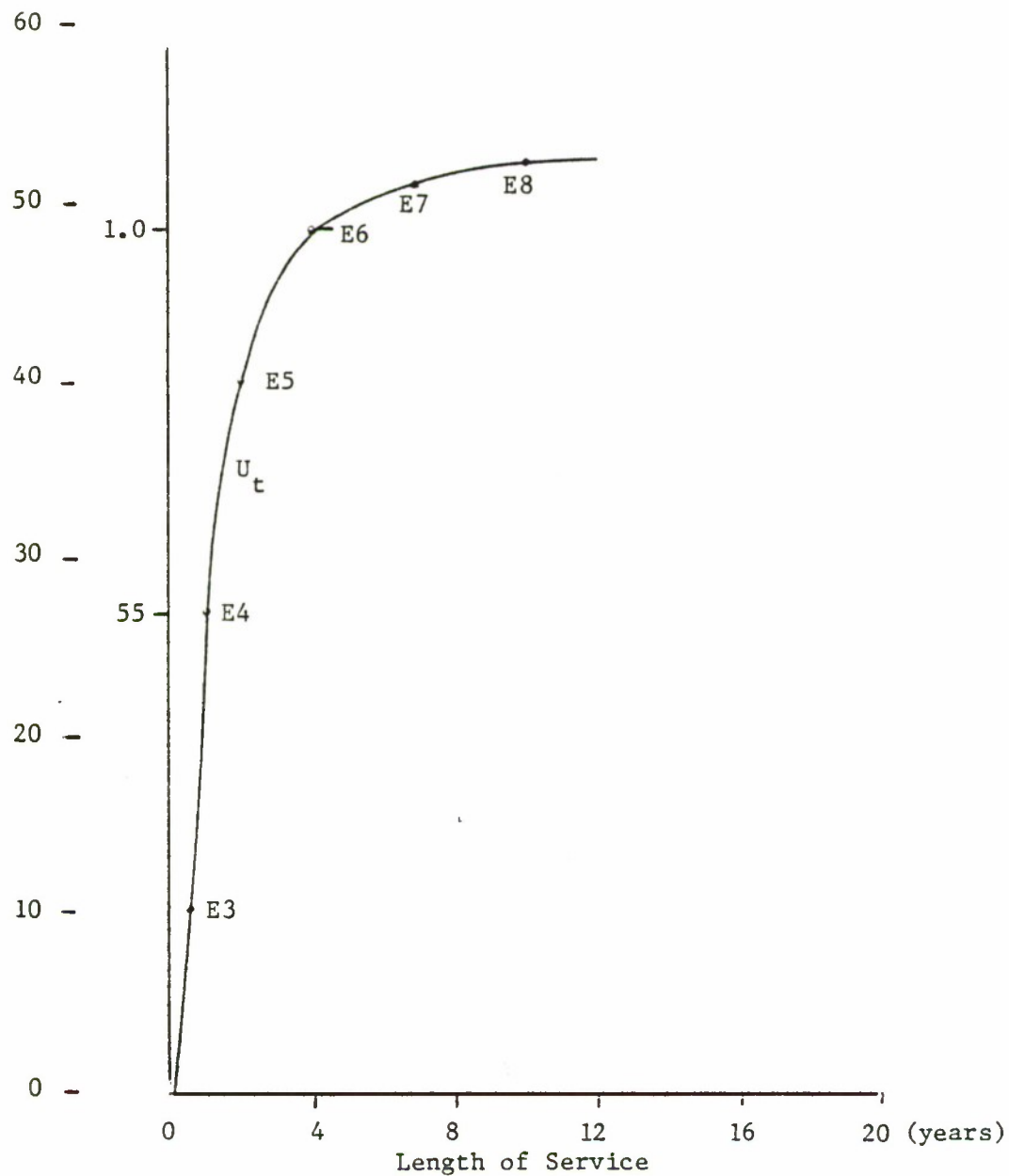
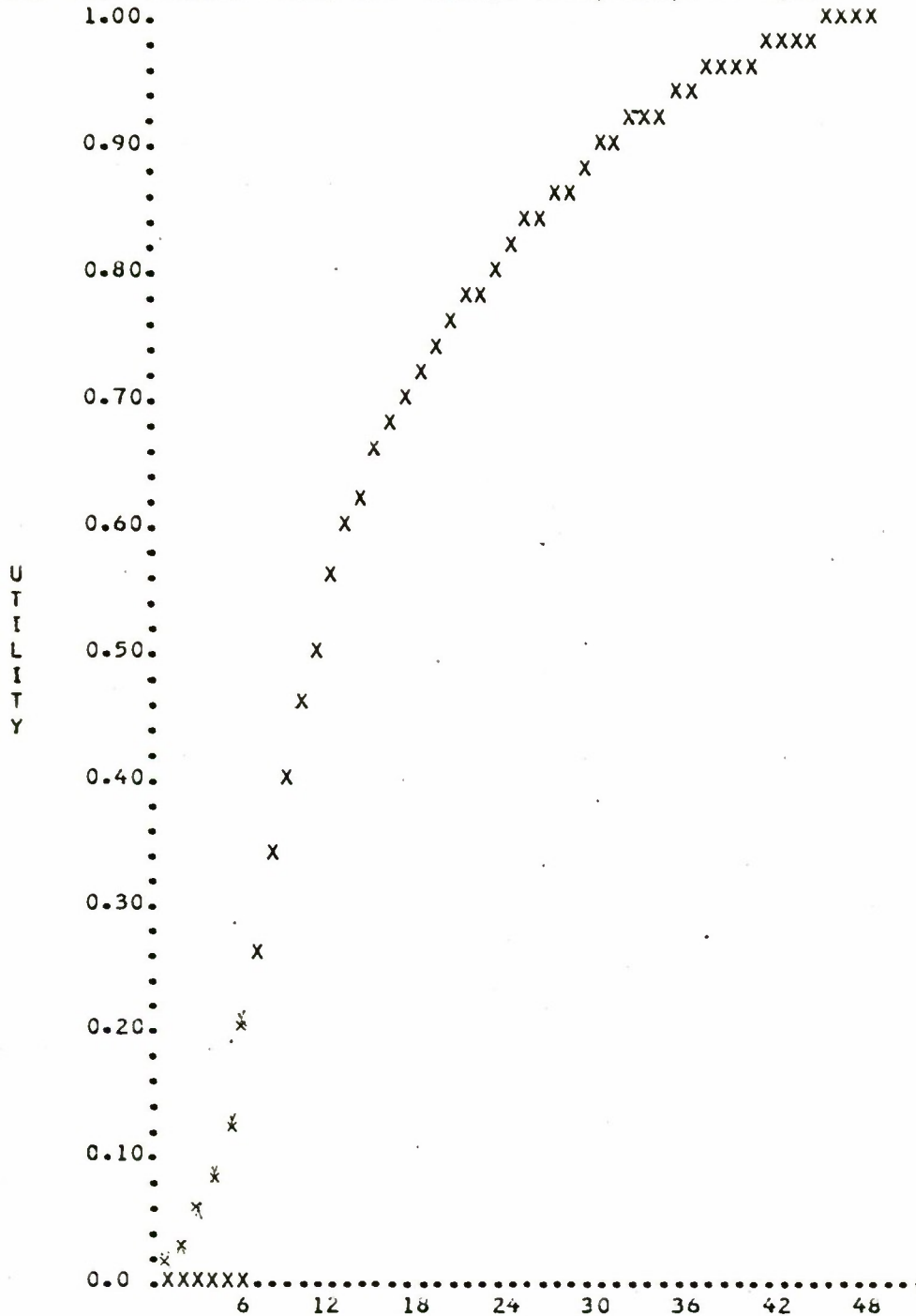


Fig. 5.10 —Growth in Utility of Technical Performance
 Generic ALLNAV A-School Grad

UTILITY FUNCTION

DEP TEST PROBLEM—PASS ONE MALE, I-III A, HSG, 4 YR TERM



0	0.015
1	0.033
2	0.056
3	0.088
4	0.133
5	0.198
6	0.2650
7	0.3310
8	0.3930
9	0.4510
10	0.5040
11	0.5510
12	0.5910
13	0.6240
14	0.6520
15	0.6770
16	0.6990
17	0.7190
18	0.7370
19	0.7540
20	0.7710
21	0.7870
22	0.8020
23	0.8170
24	0.8310
25	0.8450
26	0.8580
27	0.8700
28	0.8820
29	0.8930
30	0.9030
31	0.9130
32	0.9220
33	0.9300
34	0.9380
35	0.9450
36	0.9520
37	0.9580
38	0.9640
39	0.9690
40	0.9740
41	0.9790
42	0.9830
43	0.9870
44	0.9910
45	0.9940
46	0.9970
47	1.0000

Fig. 5.11A

UTILITY FUNCTION

DEP TEST PROBLEM--PASS ONE MALE, I-IIIA, NHSG, 4 YR TERM

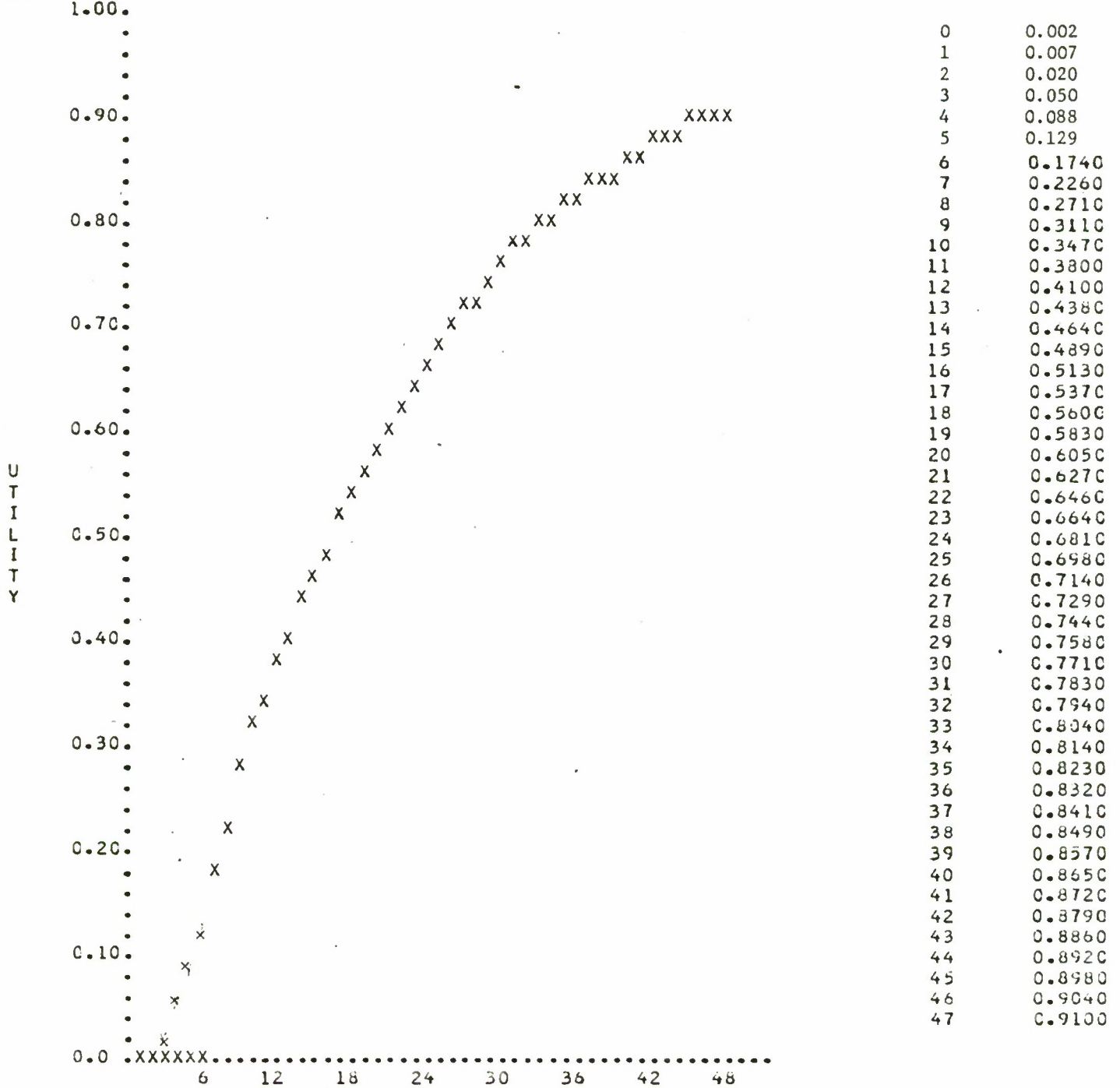
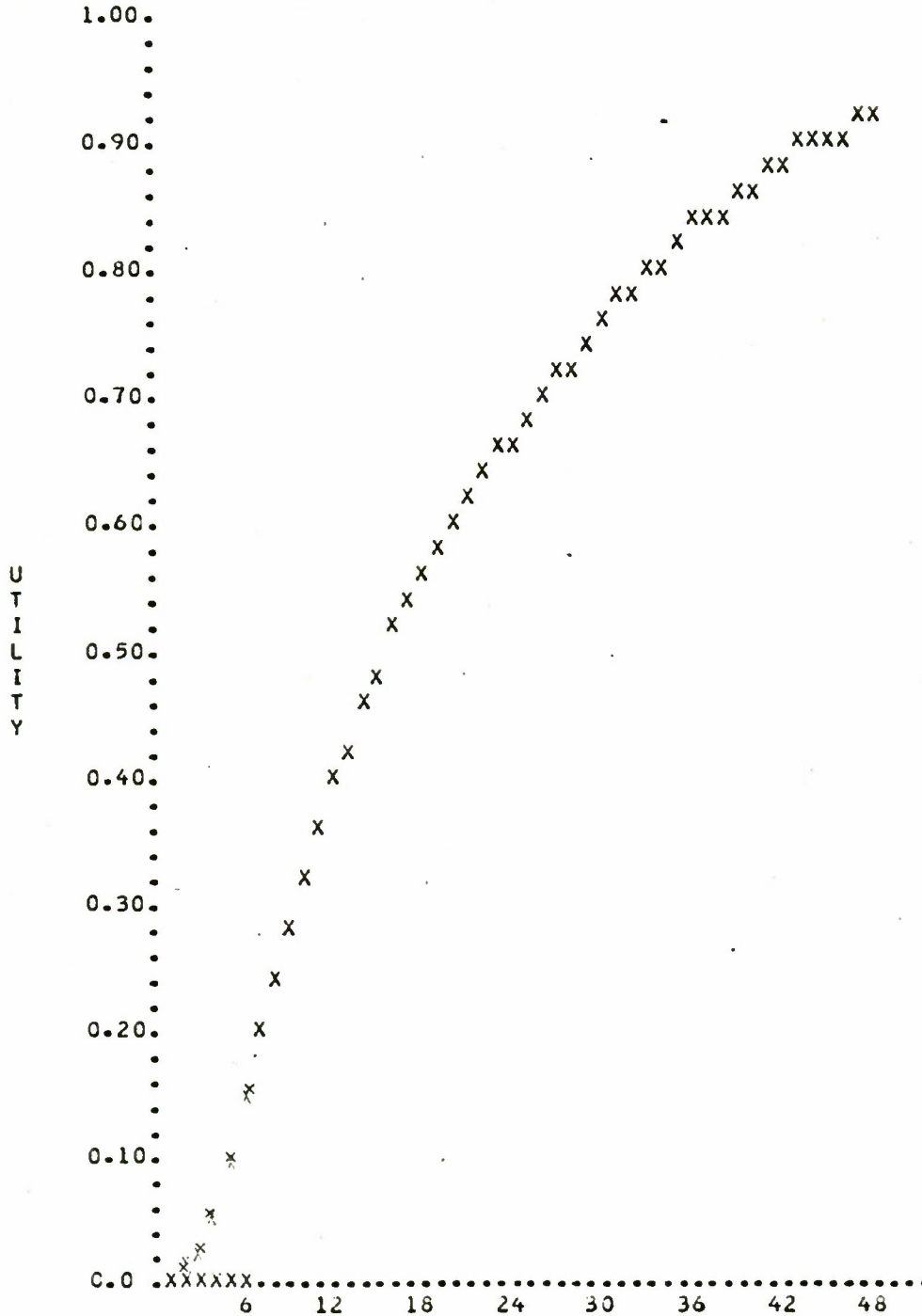


Fig. 5.11B

UTILITY FUNCTION

DEP TEST PROBLEM--PASS ONE MALE,IIIB , HSG,4 YR TERM



0	0.004
1	0.009
2	0.020
3	0.050
4	0.091
5	0.142
6	0.1920
7	0.2390
8	0.2830
9	0.3240
10	0.3620
11	0.3970
12	0.4290
13	0.4580
14	0.4850
15	0.5100
16	0.5330
17	0.5550
18	0.5760
19	0.5960
20	0.6150
21	0.6330
22	0.6510
23	0.6680
24	0.6840
25	0.7000
26	0.7150
27	0.7300
28	0.7440
29	0.7580
30	0.7710
31	0.7840
32	0.7960
33	0.8080
34	0.8190
35	0.8300
36	0.8400
37	0.8500
38	0.8590
39	0.8680
40	0.8760
41	0.8840
42	0.8910
43	0.8980
44	0.9040
45	0.9100
46	0.9150
47	0.9200

Fig. 5.12A

UTILITY FUNCTION

DEP TEST PROBLEM--PASS ONE MALE, I11B ,NHSG, 4 YR TERM

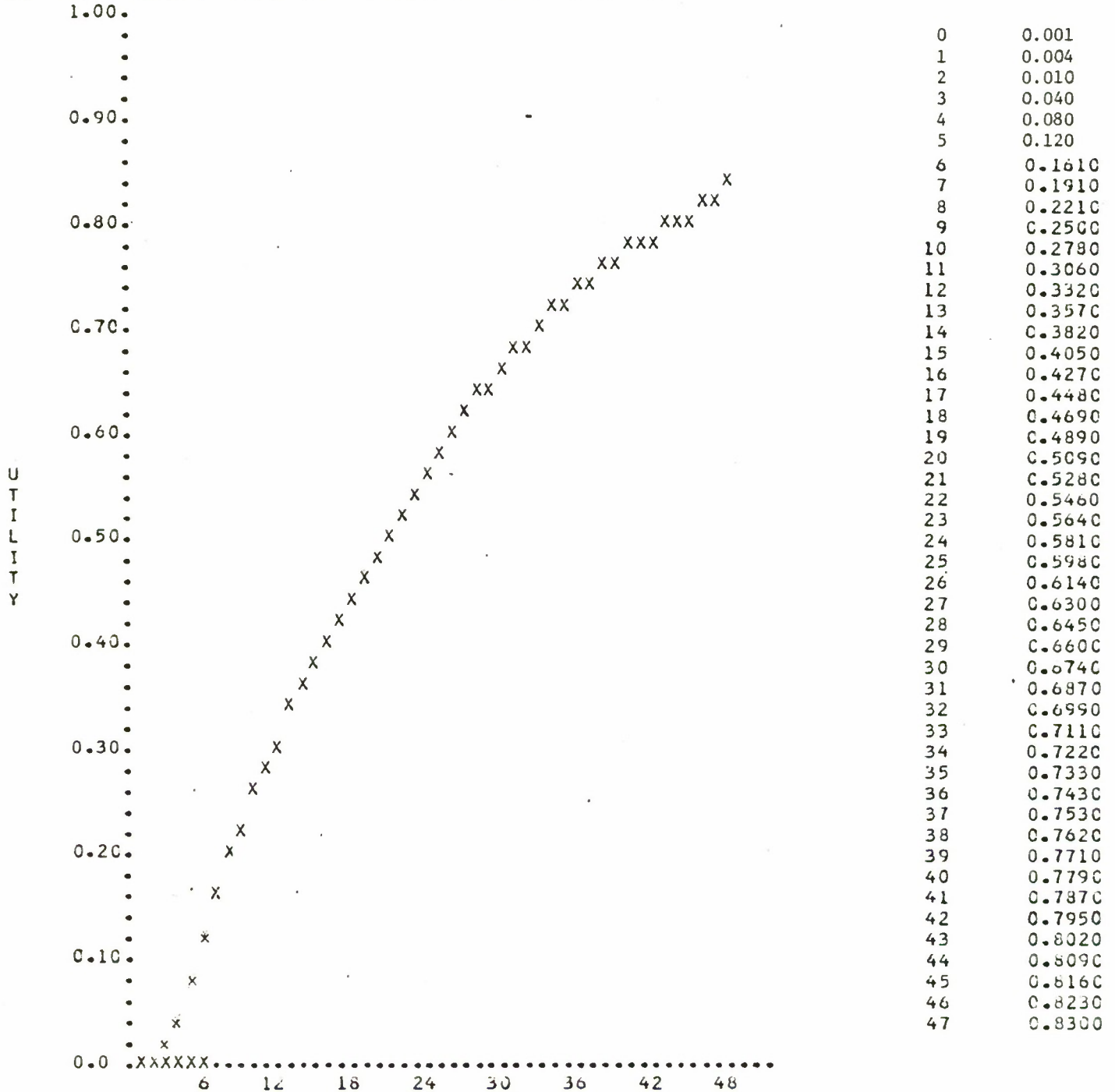
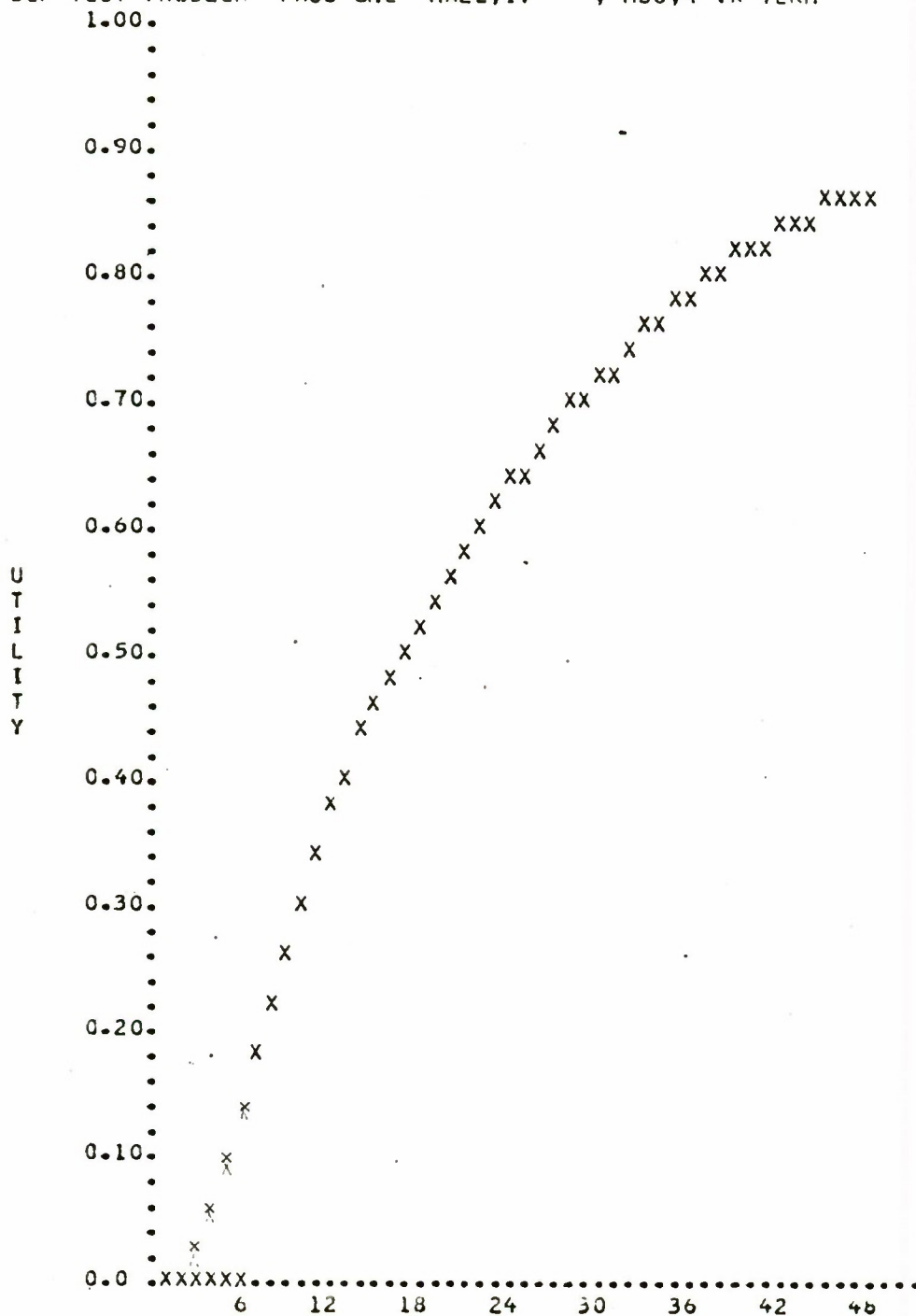


Fig. 5.12B

UTILITY FUNCTION

DEP TEST PROBLEM--PASS ONE MALE, IV , HSG, 4 YR TERM

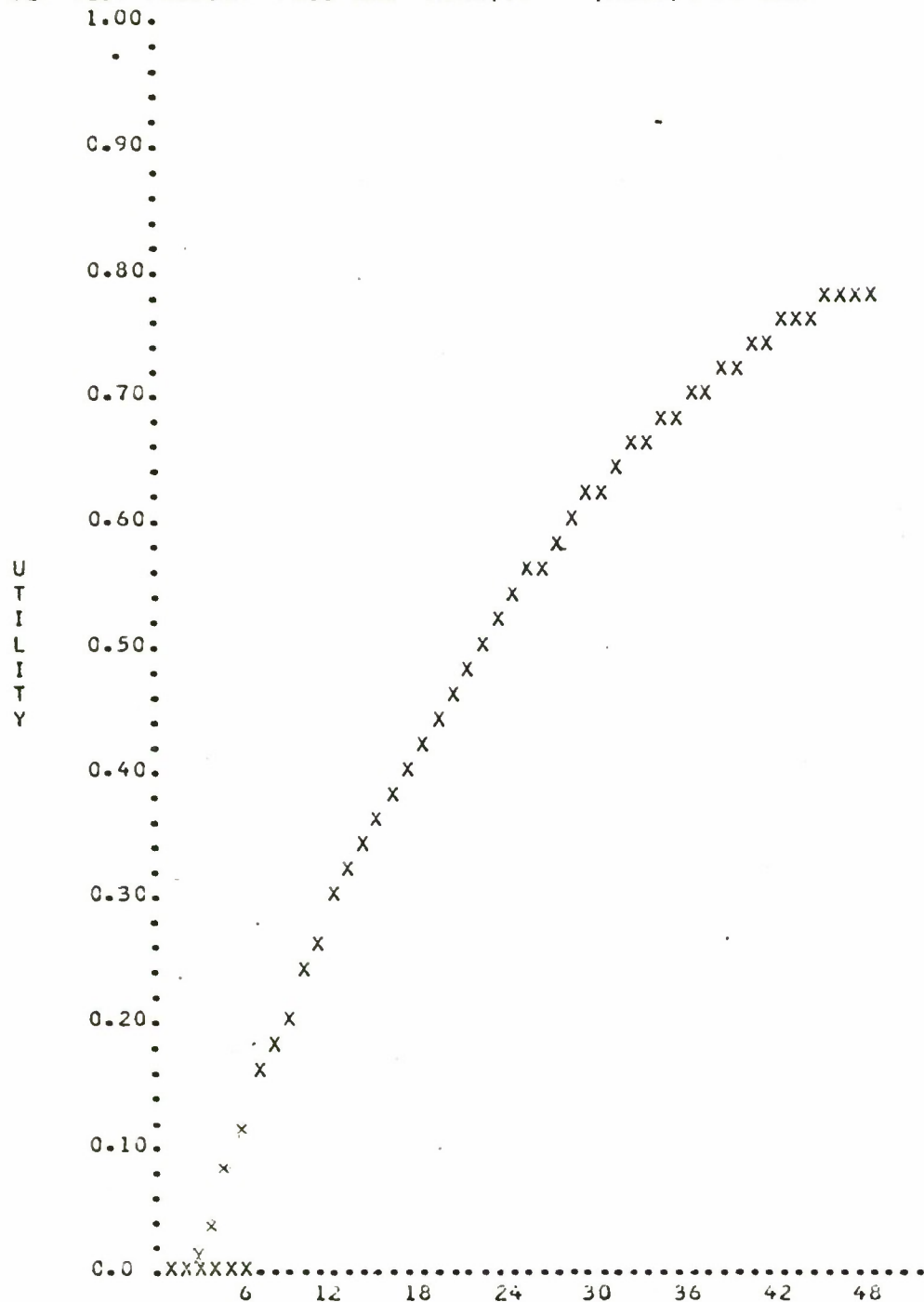


0	0.004
1	0.008
2	0.018
3	0.047
4	0.086
5	0.134
6	0.1820
7	0.2260
8	0.2680
9	0.3060
10	0.3420
11	0.3750
12	0.4060
13	0.4330
14	0.4590
15	0.4820
16	0.5040
17	0.5250
18	0.5450
19	0.5640
20	0.5820
21	0.5990
22	0.6160
23	0.6320
24	0.6470
25	0.6620
26	0.6760
27	0.6900
28	0.7040
29	0.7170
30	0.7290
31	0.7410
32	0.7530
33	0.7640
34	0.7750
35	0.7850
36	0.7950
37	0.8040
38	0.8130
39	0.8210
40	0.8290
41	0.8360
42	0.8430
43	0.8490
44	0.8550
45	0.8600
46	0.8650
47	0.8700

Fig. 5.13A

UTILITY FUNCTION

DEP TEST PROBLEM--PASS ONE MALE, IV ,NHSG, 4 YR TERM



0	0.001
1	0.004
2	0.010
3	0.038
4	0.076
5	0.114
6	0.1530
7	0.1820
8	0.2100
9	0.2380
10	0.2650
11	0.2910
12	0.3160
13	0.3410
14	0.3640
15	0.3860
16	0.4070
17	0.4270
18	0.4470
19	0.4660
20	0.4850
21	0.5030
22	0.5200
23	0.5370
24	0.5530
25	0.5690
26	0.5850
27	0.6000
28	0.6150
29	0.6290
30	0.6430
31	0.6550
32	0.6670
33	0.6780
34	0.6890
35	0.6990
36	0.7090
37	0.7180
38	0.7270
39	0.7350
40	0.7430
41	0.7510
42	0.7580
43	0.7650
44	0.7720
45	0.7780
46	0.7840
47	0.7900

Fig. 5.13B

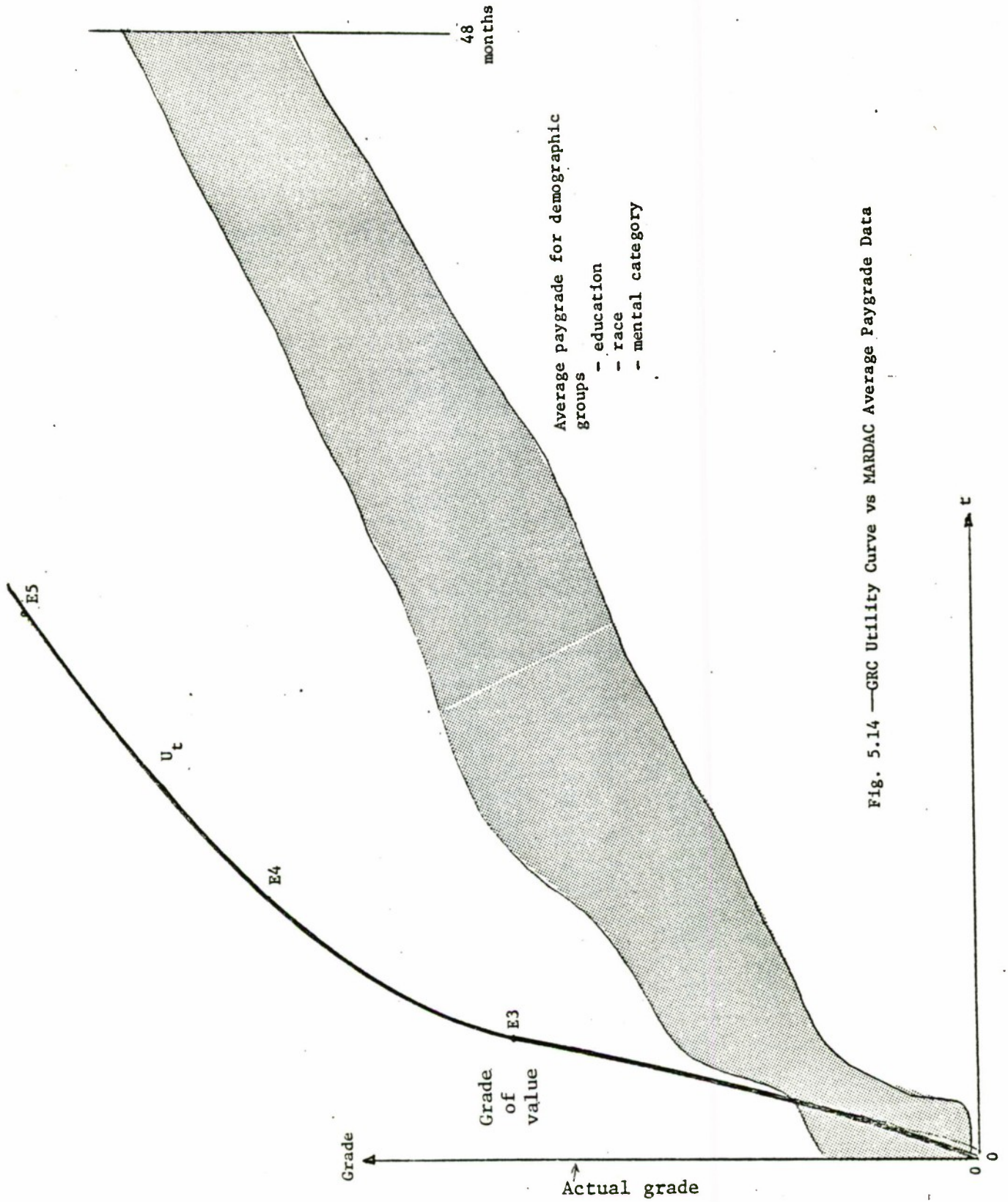


Fig. 5.14 —GRC Utility Curve vs MARDAC Average Paygrade Data

THE RAND CORPORATION OJT QUESTIONNAIRE

Section I

The following questions pertain to the on-the-job performance of the TYPICAL NEW TRAINEE who joins your unit immediately after completing basic military training and the technical school course in your specialty. In answering consider only on-the-job performance and disregard formal Air Force designations such as pay grade or skill level.

1. Approximately how many weeks would you estimate it takes between the time a typical new trainee joins your unit until he starts being an asset to the unit? That is, HOW LONG IS IT UNTIL THE VALUE OF HIS OUTPUT IS APPROXIMATELY EQUAL TO THE VALUE OF THE WORK LOST BY OTHERS WHO WERE SUPERVISING AND INSTRUCTING HIM?

Enter Number: _____ weeks

2. About how many months, from the time he joins the unit do you estimate it takes the typical new trainee to achieve the proficiency of the TYPICAL MAN IN YOUR UNIT?

. Enter Number: _____ months

3. Approximately how many months, from the time he joins the unit, do you estimate it takes the typical new trainee to become a FULLY TRAINED SPECIALIST capable of satisfactorily performing almost any job in the shop?

Enter Number: _____ months

Fig. 5.15—Excerpt from Gay's Air Force OJT Survey for RAND/ARPA

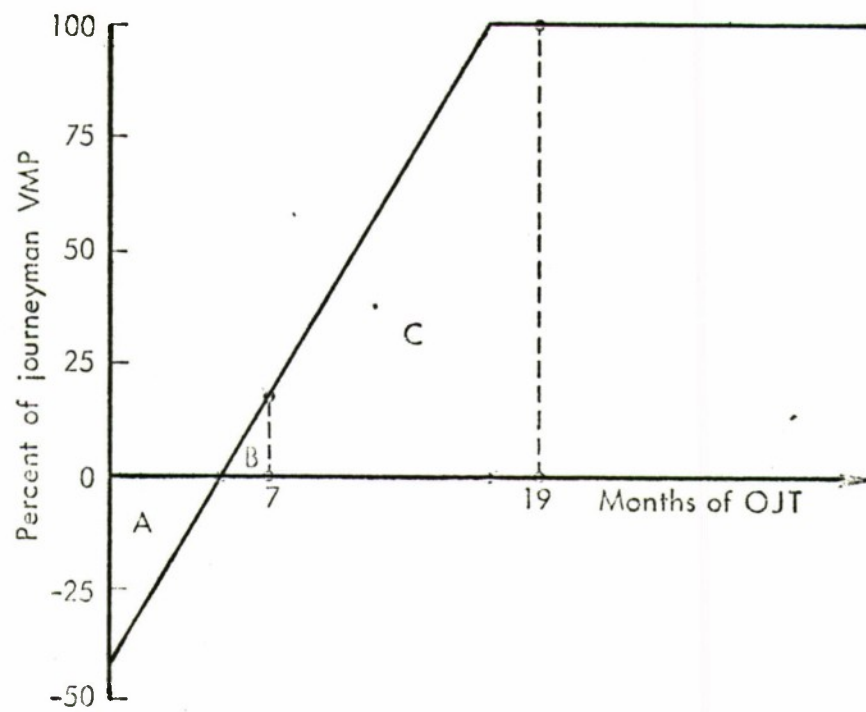


Fig. 5.16—VMP of the Typical Air Force Trainee Relative to a Journeyman

A note concerning the initial negative VMP of Gay's graph: the GRC study assumes a positive utility at all times, for the trainee has always a positive and increasing competency. The approach taken by Gay assigns a dollar value to the overall output of the group of which the trainee is a part. Hence, as supervisors and other more experienced personnel divert their time from producing to training, the presence of the trainee initially causes a decline in output. This decline Gay assigns entirely to the trainee, hence the negative VMP. GRC, on the other hand, reflects this negative value in the higher cost incurred for the positive output that he does contribute. Instead of valuing the trainee's contribution negatively, GRC assigns a higher cost through the lowered productivity of the recruits' trainers in the logic of the GRC attrition cost model.

6 COMPUTERIZED ATTRITION COST ANALYSIS SYSTEM

The Attrition Cost Analysis System (ACAS) is a user-oriented computer model written in Fortran for the IBM 360. The program is designed for the non-technical user. It requires no Job Control Language (JCL) changes after the initial deck is prepared. The input data consists of English language commands and free form numeric information. The diagnostics are clear and should permit the user to determine errors with a minimum of difficulty. The model was designed and programmed to permit maximum user flexibility. Data may be generated for enlistees with different characteristics including: sex, age at entry, race, education level, mental group, term of enlistment, bonus or not, rating or community, number of dependents at entry, and entry era. Although the system has an associated data base (see Chapters 3,4,5), the user may choose to input his own values to answer the typical "what if" questions that arise in policy discussions. The outputs include attrition cost and utility data and can be presented in a variety of user-specified forms.

THE MODEL

System Design

The ACAS uses three functions—a survival function, a cost function, and a utility function to compute measures of cost-effectiveness. The user must input three sets of information to the model. The first specifications are the characteristics of the group of enlistees for which the results are requested. The second inputs stipulate what outputs are needed and the form in which this output is to be presented (graphs or tables). Finally, the user details any changes to the data base for this analysis. In the data modification section the user must specify which type of utility function will be used for these calculations.

The Functions

Survival Function. The model calculates the probability of survival for the first 48 months of service for the specified group of enlistees. These calculations use the attrition data base (see Chapter 3). The user may also choose to input a new survival function.

Utility Function. Four alternatives are available to the user in choosing a utility function. The learning curves are discussed in detail in Chapter 5. These curves have been developed only for the Navy. Since these curves have been constructed for different education levels and mental groups rather than occupational specialties, they are available for use in Marine Corps analyses. It is important for the Marine Corps user to review carefully the applicability of these curves to his enlistment group.

The second option sets utility proportional to cost. In this context the value of an individual in the Ith month would be ratio of the cost of that individual in the Ith month to the cost of a I-III A, HSG in the 48th month of service. However, since model calculates costs only for the particular group being studied, the cost of the I-III A, HSG is not available for this calculation unless it is the group being studied. The model, therefore, computes a ratio (R_I) of the total cost (C_I) of an individual in the Ith month to the total cost (C_{48}) of a similar individual in the 48th month.

$$R_I = \frac{C_I}{C_{48}} \quad (6.1)$$

This array is then multiplied by the ratio of the value of this individual in the 48th month to the value of the I-III A, HSG in the 48th month of service.*

$$U_I = R_I \cdot \frac{V_{48}}{V_{\text{HSG, I-III A, 48}}} \quad (6.2)$$

Since the value of the I-III A, HSG is assumed to be 1 in this model the overall equation reduces to:

$$U_I = \frac{C_I}{C_{48}} \cdot V_{48} \quad (6.3)$$

* These values are the learning curve values for each of the types of enlistees.

A third option sets utility = 1. This is equivalent to eliminating utility as a factor. In each of these first three options, the utility is assigned a value of zero when the enlistee is in boot camp or formal school.

The user may also input a new utility function. The values for this function must range between 0 and 1.

Cost Function. The cost function computed in the model is the total monthly cost for the first 48 months of service. Since most of the cost data are presented in the data base by rank rather than length of service, a conversion is required to calculate the monthly costs. For each of the services the average grade in the Ith month was derived (Appendix B). These data are categorized by education level, race, mental group and community. The monthly cost data are then computed by a linear interpolation, e.g., to compute the monthly cost data for an enlistee in his 17th month whose average grade is 3.39 given the cost for an E-3 is 29.33 and for an E-4 is 35.17, the following calculation would be used:

Average grade	(17) =	3.39
Medical cost	(3) =	29.33
" "	(4) =	35.17
Monthly medical cost	(17) =	$(1 - .39) 29.33 + (.39) 35.17$
		$= 17.89 + 13.72$
		$= 31.61$

USER OPTIONS

Control Card Formats

The control cards used as input have been designed for easy use by a non-programmer. These cards consist of a keyword which is in card columns 1-20 and value(s) which begin in columns 21.

FORMAT:	
1	21
SEX	MALE
SURVIVAL FUNCTION	GRAPH
UTILITY FUNCTION	NEW

It is important to spell keywords and values correctly. The keywords must be written exactly as specified in the instructions. The values will be edited for the first four characters. Additional characters may be included for clarity on the output. A comma will end the value, a blank will terminate the card. If the major keyword does not begin in column 1 or the first minor keyword does not begin in column 21, an error message will be printed and the run will terminate.

Run Title

The first card of the input data must be a title card. This information will be printed on all output for identification. A complete listing of the input requests will be printed as the first page of output.

ATTRITION COST ANALYSIS SYSTEM

TEST NAVY OPTOUT--NO OPTOUT(CONTROL GROUP) GROUP D

RESULTS ARE FOR THE FOLLOWING GROUP:

-SEX -
 *MALE
 -EDUCATION LEVEL -
 *NHSG
 -MENTAL GROUP -
 *IV
 -TERM OF ENLISTMENT -
 *4 YR
 -A SCHCOL -
 *NO

OUTPUT REQUESTED

-COST, UTILITY MEAS. -
 *
 -SURVIVAL FUNCTION -
 *TABLE
 -COST FUNCTION -
 *CUMULATIVE, TOTAL, TABLE

DATA MODIFICATIONS

-UTILITY -
 *COST
 -SURVIVAL FUNCTION -
 *NEW
 .71,.69,.68,.67,.632,.59,.545,.510+
 .497,.488,.477,.474,.468,.46,.458,.45
 -COST DATA -
 *AVERAGE GRADE
 1.67,3.00,1.91,2.54,2.45,3.00,2.94+
 2.80,2.92,2.50,2.81,3.38,3.61,3.33,3.62,3.87

Fig. 6.1—Sample Output - Listing of Input Requests

Group Under Consideration

The detail of the attrition data (see Chapter 3) permits the construction of survival functions for many subgroups of the enlisted force or for the force as a whole. The subgroup(s) to be included in the calculations are input to the model. Four characteristics must be specified.

- Sex: Male, Female^{*}
- Education Level: HSG, NHSG
- Mental Group: I-III A, IIIB, IV (males only)
- Term of Enlistment: 3 years, 4 or more years

Additionally, the user may specify:

- Race: White, Black
- Number of Dependents at Entry: None, one or more (males only)
- Accession Era: Pre FY75, Post FY75
- Loss Type: EAOS and Other Favorables, DFMC, Unfit; Misconduct, Trainee Discharge, Other Unfavorables
- Bonus: Yes, No (males only)
- A School:^{**} Yes, No
- Age at Entry: 17, 18, 19 or more
- Rating/Community: Any valid Navy rating or Navy or Marine Corps community^{***} (male only)

Example:	FORMAT:	
	1	21
	SEX	MALE
	EDUCATION LEVEL	NHSG
	MENTAL GROUP	IIIB
	TERM OF ENLISTMENT	3 YR

^{*} Sex need not be explicitly stated. However, if the keyword is not given, the model will assume male data are requested.

^{**} Navy

^{***} Navy Communities: Technical; aviation, engineer, hull and deck; supply, medical, admin; other.

Marine Corps Communities: Aviation, combat, ground support, other.

Tables and Graphs

The ACAS has been developed with dual objectives. The first was to provide methods of computing cost and value (utility) measures for various groups of enlistees. The second objective was to present the user with a data retrieval system for the associated data base. To meet both of the objectives, many outputs have been developed. The individual user may request the output(s) which best suit his requirements.

Cost and Utility Measures. This option will print a table with the following measures:

- Expected Cost per Utile
- Net Investment Cost at the End of 4 years
- Expected Cost to Provide One Person with 4 Years of Service
- Number of Accessions Required to Provide One Person with 48 Months of Service
- Expected Service Years
- Expected "Useful" Service Years

COST AND UTILITY MEASURES	
COST PER UTILE =	868.
NET INVESTMENT COST =	4253.
NET INVESTMENT COST PER UTILE =	240.
COST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE =	34232.
EXPECTED SERVICE YEARS =	2.3
EXPECTED "USEFUL" SERVICE YEARS =	1.5
EXPECTED COST =	15404.

Fig. 6.2—Sample Output - Benefit Cost Measures

LOSS RATES

FEMALE HIGH SCHOOL GRADS, 4 YR TERM							
MONTH	EAOS	DFMC	UNFI	MISC	TRAI	OTHE	TOTA
0	0.0006	0.0	0.0001	0.0115	0.0	0.0028	0.0149
1	0.0002	0.0	0.0	0.0088	0.0	0.0025	0.0115
2	0.0002	0.0	0.0004	0.0068	0.0	0.0023	0.0096
3	0.0002	0.0001	0.0001	0.0076	0.0	0.0022	0.0102
4	0.0004	0.0	0.0002	0.0081	0.0	0.0032	0.0118
5	0.0003	0.0	0.0002	0.0070	0.0	0.0029	0.0103
6	0.0006	0.0	0.0001	0.0061	0.0	0.0032	0.0100
7	0.0006	0.0	0.0001	0.0050	0.0	0.0042	0.0099
8	0.0006	0.0	0.0003	0.0041	0.0	0.0033	0.0083
9	0.0004	0.0	0.0001	0.0033	0.0	0.0043	0.0082
10	0.0004	0.0	0.0005	0.0030	0.0	0.0056	0.0095
11	0.0006	0.0	0.0003	0.0035	0.0	0.0043	0.0086
12	0.0003	0.0	0.0001	0.0034	0.0	0.0043	0.0081
13	0.0005	0.0	0.0002	0.0034	0.0	0.0041	0.0083
14	0.0006	0.0	0.0003	0.0036	0.0	0.0048	0.0092
15	0.0010	0.0	0.0004	0.0030	0.0	0.0054	0.0097
16	0.0008	0.0	0.0001	0.0027	0.0	0.0046	0.0082
17	0.0010	0.0	0.0005	0.0025	0.0	0.0065	0.0106
18	0.0015	0.0	0.0002	0.0023	0.0	0.0060	0.0100
19	0.0009	0.0	0.0003	0.0027	0.0	0.0063	0.0103
20	0.0005	0.0	0.0002	0.0028	0.0	0.0057	0.0092
21	0.0014	0.0	0.0	0.0026	0.0	0.0074	0.0114
22	0.0005	0.0	0.0003	0.0027	0.0	0.0056	0.0091
23	0.0007	0.0	0.0001	0.0021	0.0	0.0066	0.0095
24	0.0014	0.0	0.0001	0.0015	0.0	0.0061	0.0090
25	0.0013	0.0	0.0	0.0018	0.0	0.0058	0.0089
26	0.0014	0.0	0.0002	0.0029	0.0	0.0044	0.0088
27	0.0008	0.0	0.0002	0.0010	0.0	0.0047	0.0067
28	0.0002	0.0	0.0	0.0006	0.0	0.0062	0.0071
29	0.0004	0.0	0.0004	0.0024	0.0	0.0074	0.0107
30	0.0003	0.0	0.0	0.0008	0.0	0.0057	0.0067
31	0.0003	0.0	0.0	0.0012	0.0	0.0043	0.0058
32	0.0008	0.0	0.0	0.0020	0.0	0.0052	0.0080
33	0.0003	0.0	0.0006	0.0015	0.0	0.0065	0.0088
34	0.0006	0.0	0.0003	0.0019	0.0	0.0064	0.0092
35	0.0013	0.0	0.0	0.0010	0.0	0.0068	0.0092
36	0.0	0.0	0.0	0.0007	0.0	0.0027	0.0035
37	0.0004	0.0	0.0	0.0009	0.0	0.0063	0.0076
38	0.0015	0.0	0.0	0.0005	0.0	0.0061	0.0081
39	0.0	0.0	0.0	0.0024	0.0	0.0072	0.0097
40	0.0014	0.0	0.0007	0.0	0.0	0.0051	0.0072
41	0.0	0.0	0.0	0.0	0.0	0.0044	0.0044
42	0.0	0.0	0.0	0.0012	0.0	0.0068	0.0080
43	0.0	0.0	0.0	0.0	0.0	0.0073	0.0073
44	0.0018	0.0	0.0	0.0	0.0	0.0055	0.0073
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	0.0139	0.0	0.0	0.0	0.0	0.0035	0.0174
47	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Fig. 6.4— Sample Output - Loss Rates

WEIGHTED LOSS COUNTS

MALE HIGH SCHOOL	GRADS, I-III	4 YR	TERM					
EAOS	DFMC	UNFI	MISC	TRAI	OTHE	TOTA UNFA	TOTA	
0	3.	0.	48.	291.	0.	259.	598.	601.
1	15.	0.	112.	468.	0.	512.	1092.	1106.
2	15.	0.	83.	358.	0.	370.	812.	827.
3	15.	0.	66.	294.	0.	303.	662.	677.
4	17.	0.	83.	385.	0.	317.	786.	803.
5	18.	0.	105.	515.	0.	345.	965.	983.
6	16.	0.	123.	543.	0.	434.	1100.	1116.
7	20.	0.	139.	524.	0.	431.	1093.	1113.
8	25.	0.	133.	488.	0.	438.	1059.	1083.
9	29.	2.	144.	465.	0.	438.	1049.	1077.
10	24.	0.	145.	447.	0.	411.	1003.	1027.
11	35.	0.	169.	458.	0.	401.	1028.	1063.
12	48.	0.	158.	421.	0.	414.	993.	1041.
13	22.	0.	144.	380.	0.	326.	850.	872.
14	30.	0.	159.	385.	0.	349.	893.	923.
15	28.	0.	144.	367.	0.	301.	812.	840.
16	21.	1.	171.	312.	0.	327.	811.	832.
17	14.	0.	168.	305.	0.	281.	754.	768.
18	26.	0.	148.	317.	0.	302.	767.	792.
19	13.	0.	158.	248.	0.	260.	665.	678.
20	28.	0.	167.	256.	0.	246.	669.	697.
21	27.	1.	139.	195.	0.	213.	548.	575.
22	21.	0.	145.	222.	0.	222.	590.	610.
23	36.	0.	122.	209.	0.	200.	531.	568.
24	29.	0.	121.	179.	0.	194.	494.	522.
25	29.	0.	99.	183.	0.	192.	475.	503.
26	14.	1.	109.	181.	0.	173.	464.	478.
27	19.	0.	93.	149.	0.	155.	398.	416.
28	17.	0.	107.	150.	0.	158.	415.	432.
29	24.	0.	93.	133.	0.	145.	372.	396.
30	13.	0.	112.	110.	0.	138.	360.	373.
31	13.	0.	93.	125.	0.	166.	383.	396.
32	18.	0.	84.	120.	0.	119.	324.	342.
33	15.	0.	63.	70.	0.	89.	222.	236.
34	12.	0.	76.	86.	0.	111.	272.	285.
35	11.	0.	53.	75.	0.	86.	214.	225.
36	21.	0.	58.	60.	0.	101.	218.	240.
37	7.	0.	58.	52.	0.	88.	198.	206.
38	9.	0.	36.	49.	0.	63.	148.	157.
39	8.	0.	38.	40.	0.	63.	140.	148.
40	15.	0.	30.	44.	0.	50.	124.	140.
41	7.	0.	30.	31.	0.	25.	86.	93.
42	7.	0.	16.	29.	0.	24.	69.	75.
43	15.	0.	13.	17.	0.	24.	54.	69.
44	50.	0.	9.	15.	0.	17.	41.	91.
45	300.	0.	12.	4.	0.	8.	24.	325.
46	209.	0.	3.	7.	0.	11.	21.	229.
47	68.	0.	4.	0.	0.	1.	6.	73.

Fig. 6.5— Sample Output - Weighted Loss Counts

Attrition Data. The user can produce this data as loss data or survival data. The request for loss rates will produce a table of monthly loss rates by type for the particular group specified. Also a table of weighted loss counts will be printed. If the survival function is specified, the user can request either a table or a graph.

Example:

FORMAT:

1

21

LOSS RATES

ALL

SURVIVAL FUNCTION

TABLE

SURVIVAL FUNCTION

TABLE,GRAPH

Utility Data. The utility function can also be presented as a table or a graph.

Example:

FORMAT:

1

21

UTILITY FUNCTION

GRAPH

UTILITY FUNCTION

TABLE,GRAPH

UTILITY FUNCTION

FEMALE HIGH SCHOOL GRADS, 4 YR TERM
MONTH

0	0.0
1	0.0
2	0.0
3	0.0
4	0.0
5	0.1736
6	0.2650
7	0.3310
8	0.3930
9	0.4510
10	0.5040
11	0.5510
12	0.5910
13	0.6240
14	0.6520
15	0.6770
16	0.6990
17	0.7190
18	0.7370
19	0.7540
20	0.7710
21	0.7870
22	0.8020
23	0.8170
24	0.8310
25	0.8450
26	0.8580
27	0.8700
28	0.8820
29	0.8930
30	0.9030
31	0.9130
32	0.9220
33	0.9300
34	0.9380
35	0.9450
36	0.9520
37	0.9580
38	0.9640
39	0.9690
40	0.9740
41	0.9790
42	0.9830
43	0.9870
44	0.9910
45	0.9940
46	0.9970
47	1.0000

Fig. 6.6—Sample Output - Utility Function (Table)

UTILITY FUNCTION

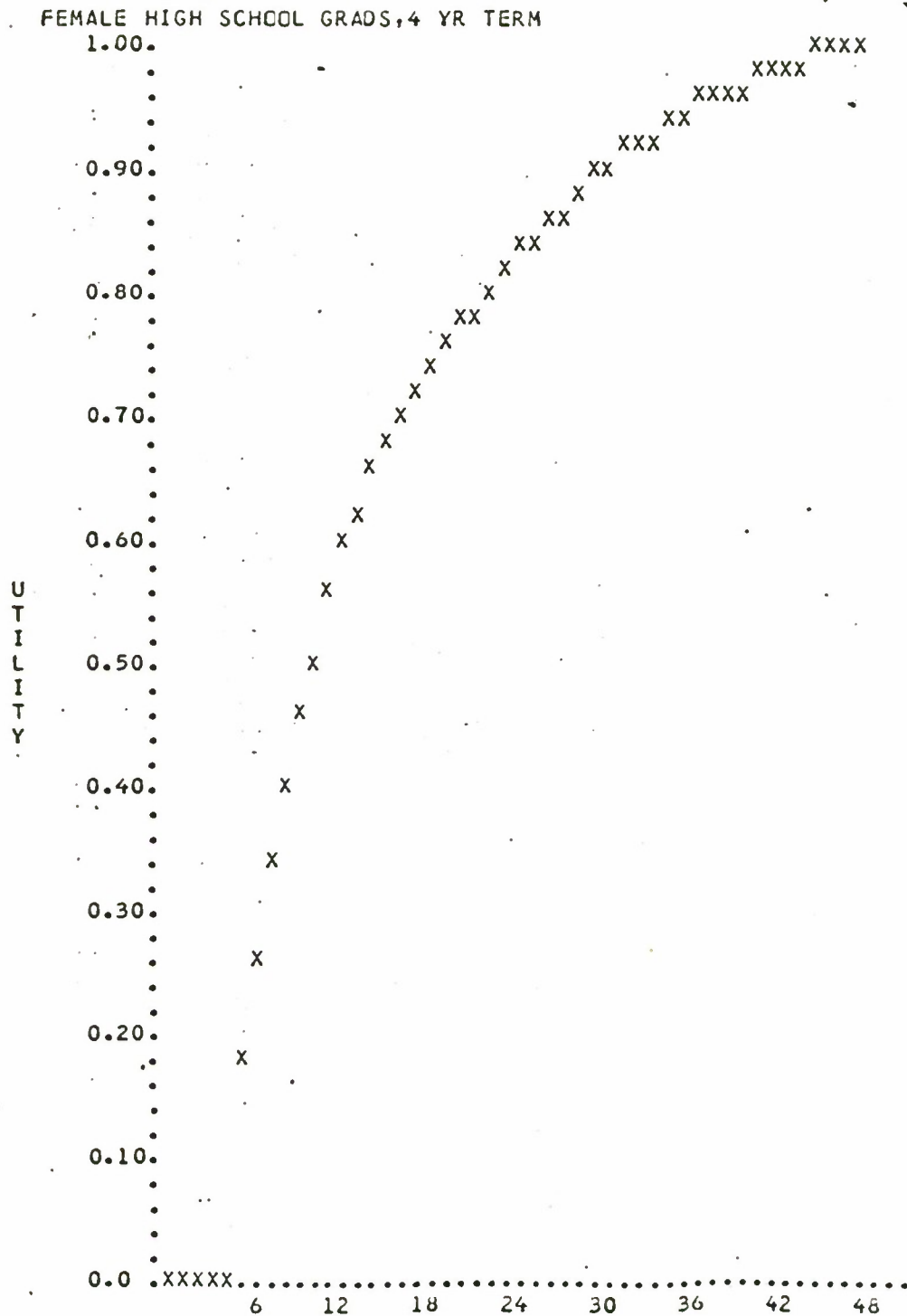


Fig. 6.7—Sample Output - Utility Function (Graph)

Cost Data. The cost data have more options available to the user since many different costs are involved. For output purposes, there are seven individual costs and the overall total.

- Recruiting and Acquisition Costs
- Training Costs: Basic Training and A-School or Formal School Costs, if Applicable
- Pay and Benefits: Base Pay, BAS, BAQ, Incentive Pays, Clothing Allowance
- Travel Costs
- Corrections Costs
- Medical and Other Costs
- Optional User Input Cost

All of these costs are output as either cumulative or monthly costs and can be printed or graphed. The only restriction is that a maximum of three types of cost data can be presented on any one graph.

Example:	FORMAT:	
	1	21
	COST FUNCTION	CUMULATIVE, ALL
	COST FUNCTION	MONTHLY, TRAVEL, GRAPH
	COST FUNCTION	CUMULATIVE, TOTAL, TABLE

Modifications to the Data Base

Much time and effort was expended gathering a data base of sufficient detail and quality to insure the reliability of the model. In order to maintain the integrity of the results, the entire data base should be updated periodically. However, the user may choose to use his own data either to test a hypothesis or to reflect known changes in the existing data. Changes will not affect the data base itself and will be used only for the current run.

COST DATA (CUM.)

TEST NAVY OPTOUT--NO OPTOUT(CONTROL GROUP) GROUP D
TOT

MONTH

0	875.
1	1862.
2	2873.
3	3315.
4	3339.
5	3358.
6	3372.
7	3939.
8	4485.
9	5023.
10	5564.
11	6117.
12	6678.
13	7244.
14	7806.
15	8366.
16	8942.
17	9522.
18	10115.
19	10705.
20	11295.
21	11886.
22	12472.
23	13052.
24	13628.
25	14210.
26	14790.
27	15367.
28	15940.
29	16501.
30	17059.
31	17624.
32	18185.
33	18751.
34	19322.
35	19913.
36	20517.
37	21127.
38	21744.
39	22363.
40	22972.
41	23576.
42	24173.
43	24775.
44	25385.
45	26002.
46	26625.
47	27253.

Fig. 6.8—Sample Output - Cost Data (Table)

Loss Rates. The user may specify a percentage increase or decrease in the loss rates for any or all of the loss categories.

Survival Function, Utility Function, Average Grade Data. A new set of values for any of these arrays may be input. The user must specify 16 values for 3-month intervals beginning in the 3rd month. The model will use a linear interpolation to complete the arrays.

Example format:

1	21
LOSS RATES	20% INCREASE MISCONDUCT, UNFIT
LCSS RATES	10% DECREASE ALL
COST DATA	AVERAGE GRADE
	[data input cards]
SURVIVAL FUNCTION	NEW
	[data input cards]
UTILITY	NEW
	[data input cards]

Cost Data. Individual values and entire arrays of the cost data base may be replaced by the user. Recruiting costs, basic training cost, discount rate, A-School (Formal School) cost and course length may all be input as individual items.* New Base Pay values (11 required) can be specified. BAS, BAQ, Incentive Pays and Clothing Allowance require five values since they differ by pay grade. Likewise, five values are needed for Travel, Medical and Other Costs. The model will also accept an entirely new cost item from the user. This item can be directed to a specific month (as a bonus might be) or over the total 48 months (e.g., new benefit).

* For the Marine Corps, this is the only way to examine the results for a particular MOS. The values for Formal School Cost and course length can be found in Chapter 4 and input to the model.

SURVIVAL FUNCTION

HSG, I-IIIA, MALE, 4YR TERM, ENGINEER DECK & HULL

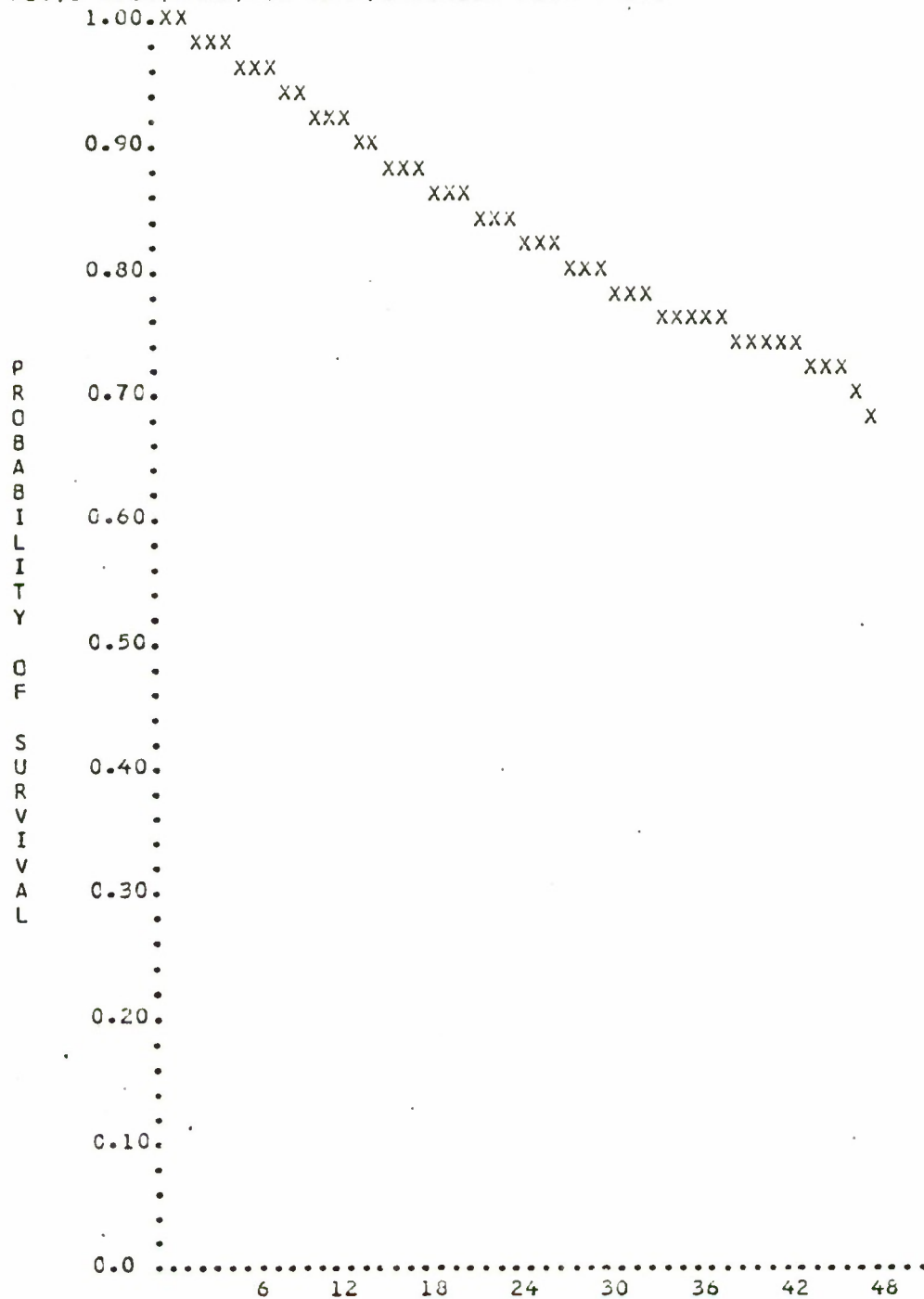


Fig. 6.9—Sample Output - Survival Function (Graph)

PROBABILITY OF SURVIVAL

TEST NAVY OPTOUT--NO CPTOUT (CONTROL GROUP) GROUP D
MONTH

0	1.0000
1	0.8550
2	0.7100
3	0.7033
4	0.6967
5	0.6900
6	0.6867
7	0.6833
8	0.6800
9	0.6767
10	0.6733
11	0.6700
12	0.6573
13	0.6447
14	0.6320
15	0.6180
16	0.6040
17	0.5900
18	0.5750
19	0.5600
20	0.5450
21	0.5333
22	0.5217
23	0.5100
24	0.5057
25	0.5013
26	0.4970
27	0.4940
28	0.4910
29	0.4880
30	0.4843
31	0.4807
32	0.4770
33	0.4760
34	0.4750
35	0.4740
36	0.4720
37	0.4700
38	0.4680
39	0.4653
40	0.4627
41	0.4600
42	0.4593
43	0.4587
44	0.4580
45	0.4553
46	0.4527
47	0.4500

Fig. 6.10—Sample Output - Survival Function (Table)

AVERAGE GRADE

FEMALE HIGH SCHOOL GRADES, 4 YR TERM
MONTH

0	1.0000
1	1.3950
2	1.7900
3	1.9900
4	2.1900
5	2.3900
6	2.4300
7	2.4700
8	2.5100
9	2.5733
10	2.6367
11	2.7000
12	2.8367
13	2.9733
14	3.1100
15	3.1400
16	3.1700
17	3.2000
18	3.2433
19	3.2867
20	3.3300
21	3.3400
22	3.3500
23	3.3600
24	3.4167
25	3.4733
26	3.5300
27	3.5533
28	3.5767
29	3.6000
30	3.6867
31	3.7733
32	3.8600
33	3.8833
34	3.9067
35	3.9300
36	3.9800
37	4.0300
38	4.0800
39	4.1133
40	4.1467
41	4.1800
42	4.2433
43	4.3067
44	4.3700
45	4.4167
46	4.4633
47	4.5100

Fig. 6.11—Sample Output - Average Grade (Table)

Example FORMAT:

1	21
COST DATA	CORRECTIONS:500
COST DATA	RECRUITING COST:2000
COST DATA	BAS
	<i>[data input cards]</i>
COST DATA	BAQ
	<i>[data input cards]</i>

The ACAS, with its large data base, variable output, and user-specified changes to the data, should provide policy planners with a method of generating cost and value measures for a variety of types of enlistees. A complete users' guide for the ACAS is included as Appendix D. This guide should be read in its entirety by anyone planning to use the model.

7 SAMPLE ANALYSES

INTRODUCTION

In this chapter, ACAS is used to study three sample problems. The intent of the examples is to illustrate the use of ACAS to support analyses of policies that affect both the utilization and cost of enlisted manpower. While actual data are employed in each sample problem, the intent here is to suggest to the user how ACAS can support policy studies in the area of attrition. With this in mind, the reader is cautioned that the case analyses that follow are not intended to provide a definitive solution to any of the policy problems presented, but rather to point the direction that further research could take.

A COMPARISON OF NAVY HIGH SCHOOL GRADUATES AND NON-GRADUATES

In this first problem, high school graduates and non-graduates are compared by mental group (I-IIIA and IIIB). The complete group specifications, in addition to education and mental group, included:

- Male enlistees
- Four or more year enlistment
- All Navy
- Utility functions — learning curves vs utility equal to one

The survival functions for these four groups are shown in Figs. 7.1 through 7.4. These figures show that the differences in attrition rates by education are much greater than the differences between mental groups (not considering mental group IV, cf Fig. 3.1).

The results of calculating several cost/benefit measures are shown in Table 7.1. Most striking is the difference in cost/benefit measures when alternative utility functions are employed. When learning curve utility functions are employed, both Cost Per Utile and Net Investment Cost are inversely related to quality; that is, the lower the quality the higher the cost. When the Utility Function has a value of 1.0 over all time after training, the ordering is reversed so that lower quality enlistees appear to be more cost-effective.

SURVIVAL FUNCTION

HSG, I-IIIA, MALE, 4YR TERM, ALL NAVY

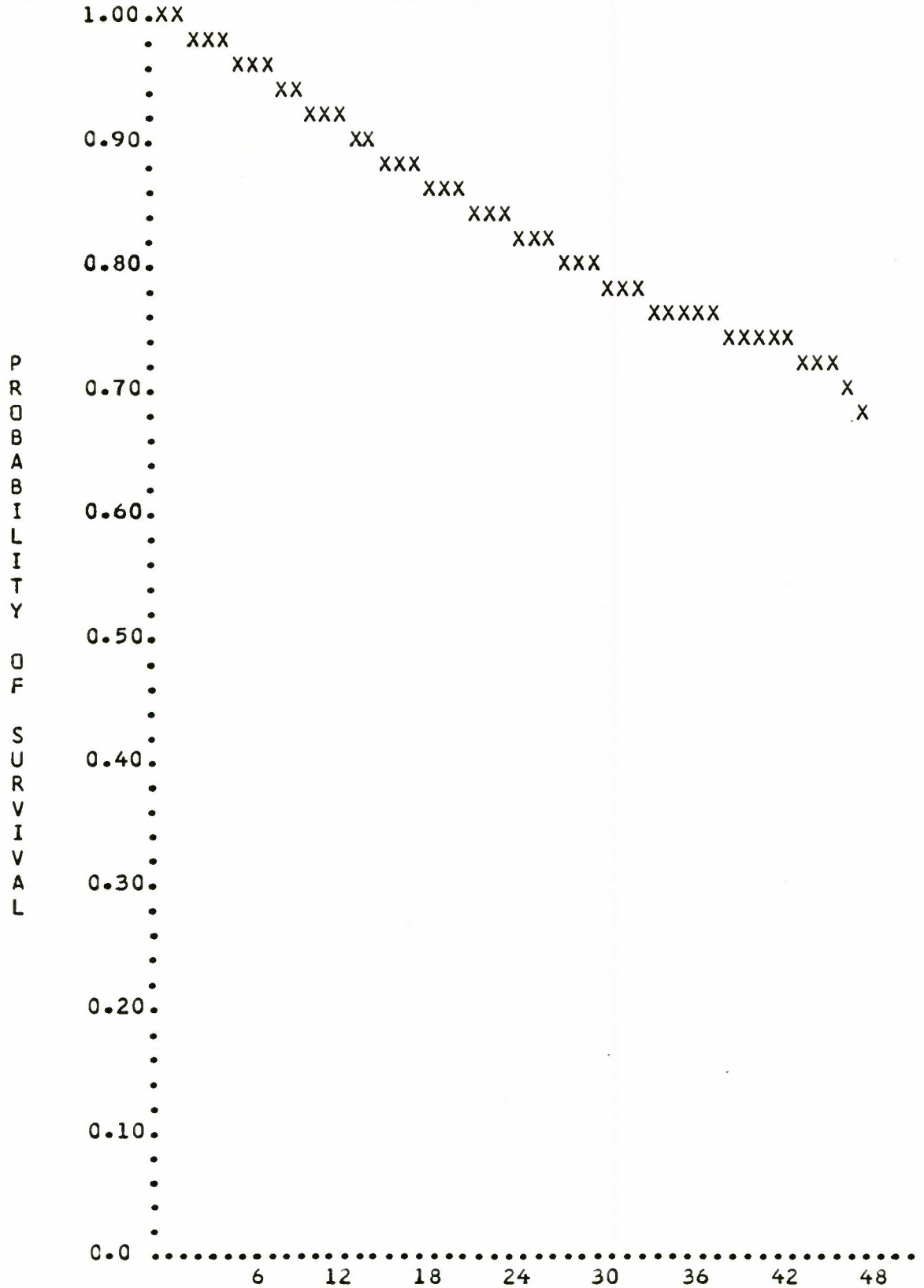


Fig. 7.1—Survival Function

SURVIVAL FUNCTION

HSG, IIB, MALE, 4YR TERM, ALL NAVY

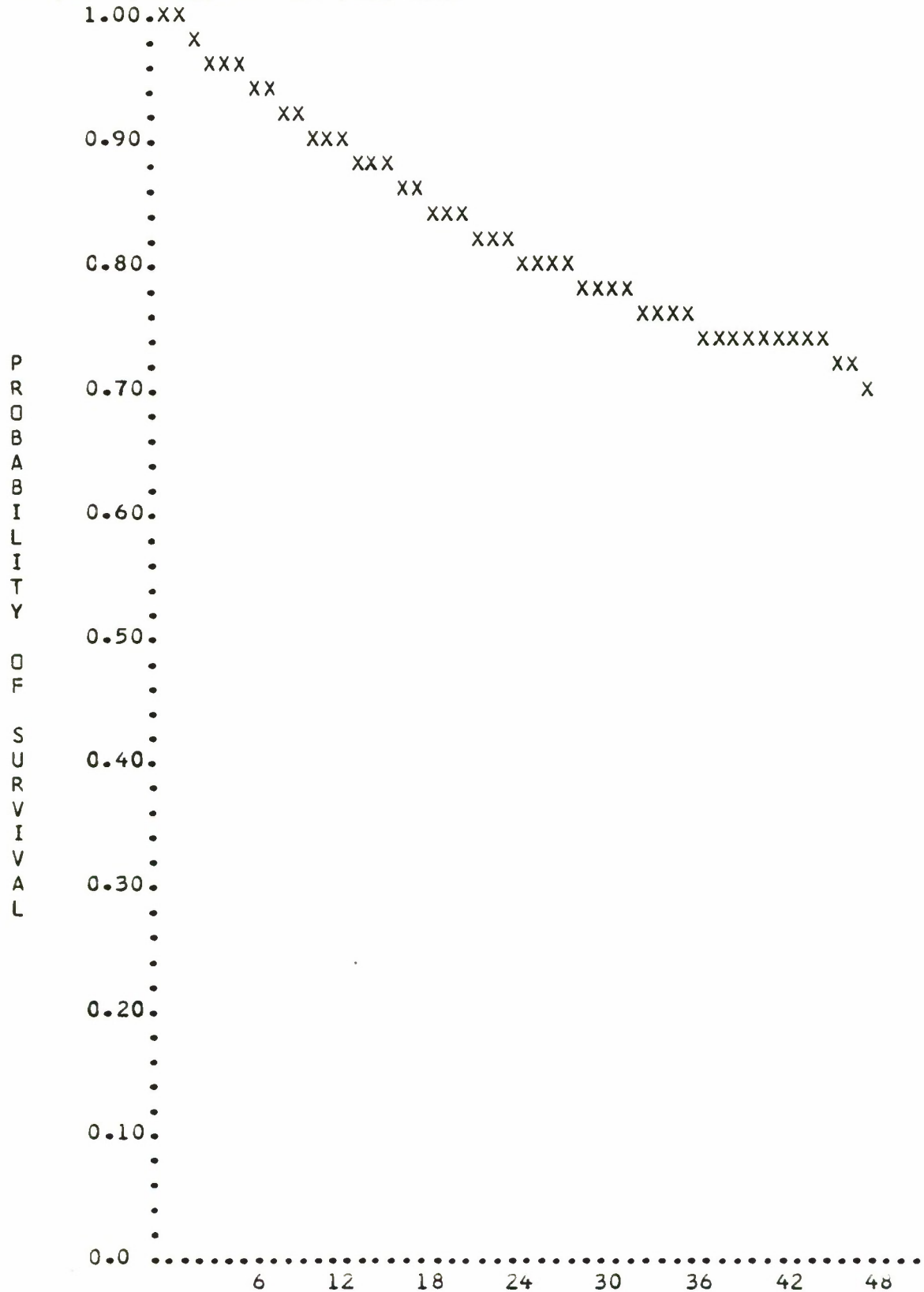


Fig. 7.2—Survival Function

SURVIVAL FUNCTION

NHSG, I-IIIA, 4YR TERM, ALL NAVY

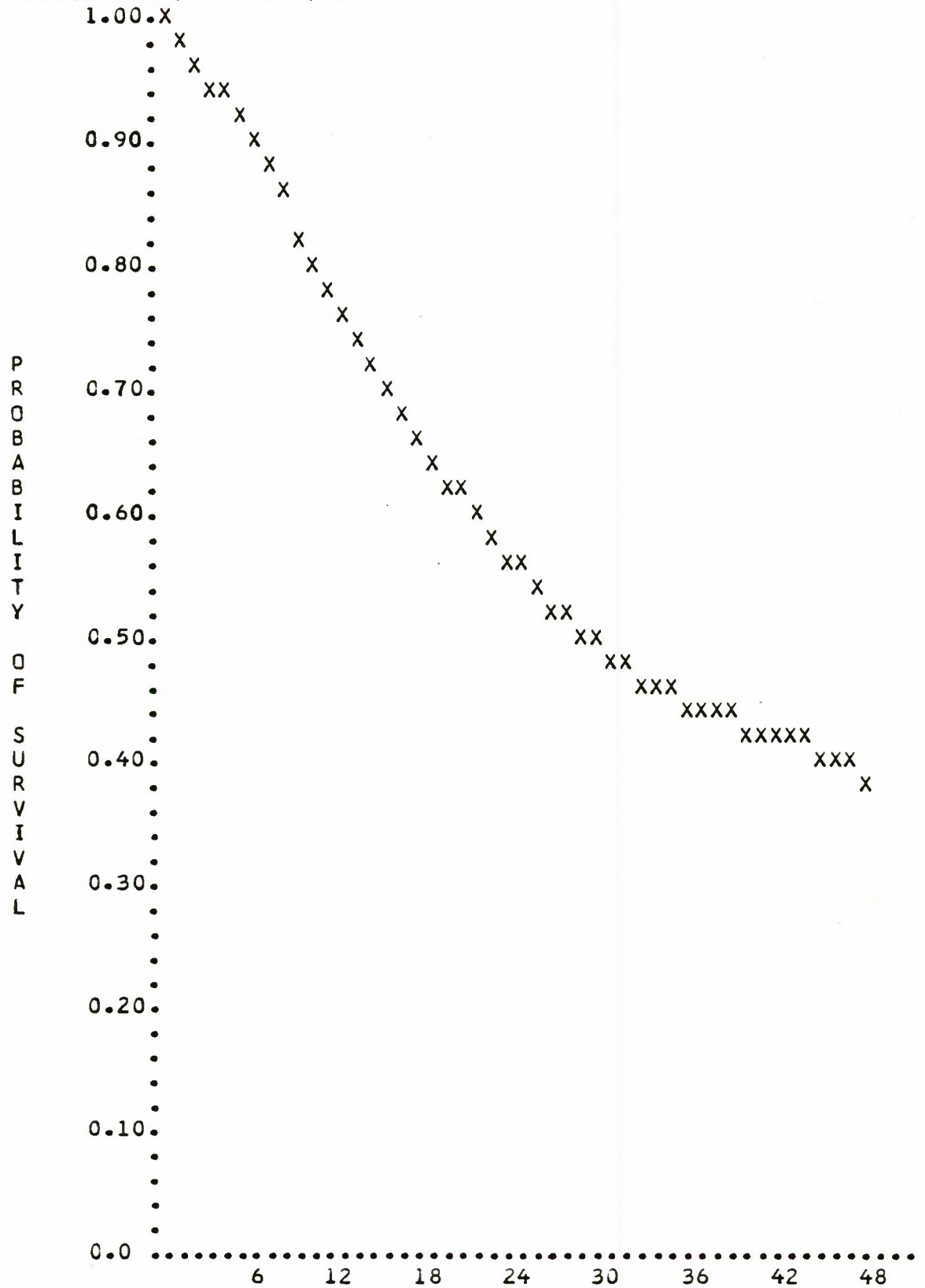


Fig. 7.3—Survival Function

SURVIVAL FUNCTION

NHSG, IIIB, MALE, 4YR TERM, ALL NAVY

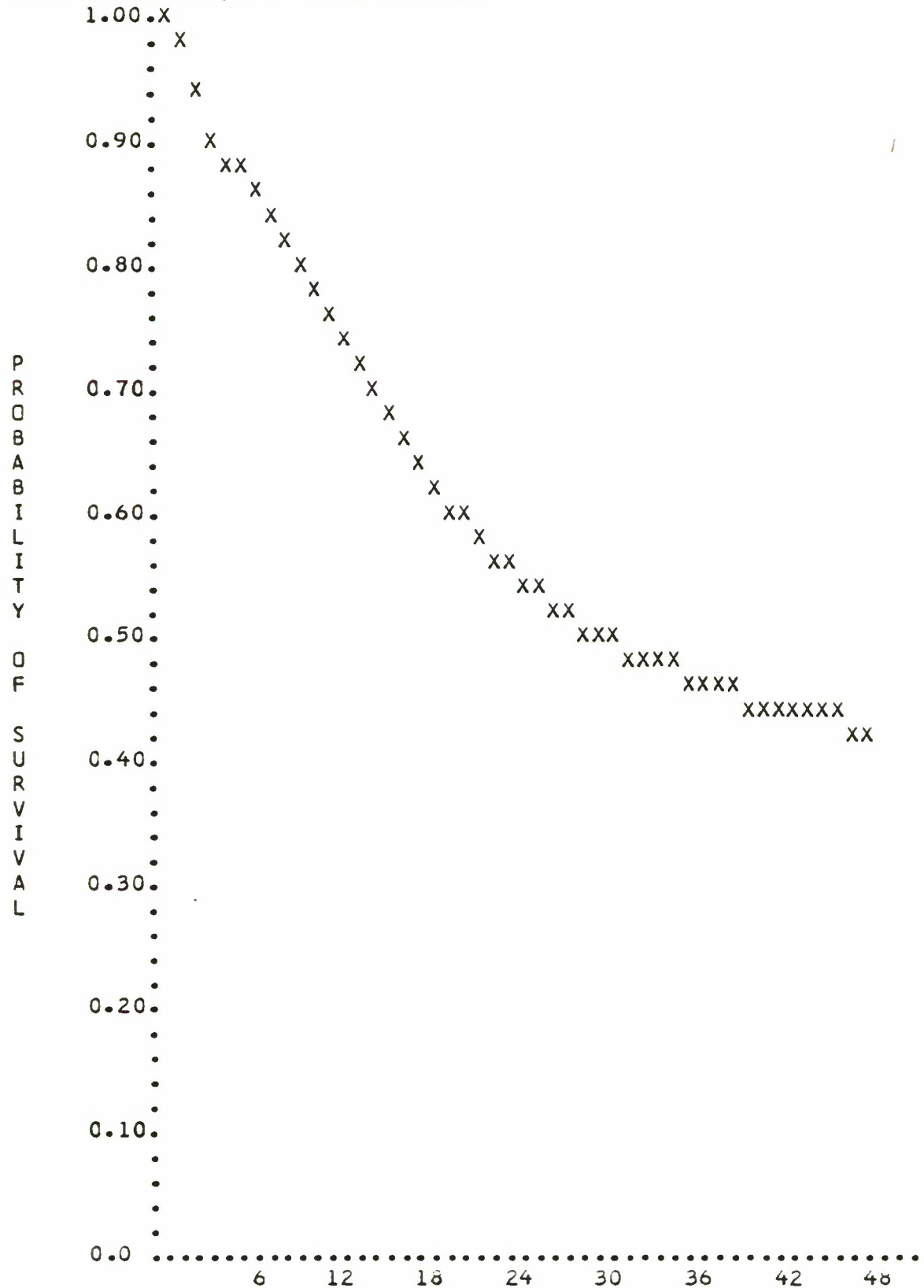


Fig. 7.4—Survival Function

Table 7.1
COST/BENEFIT MEASURES
Navy Enlistees Classified by Education and Mental Group

<u>Education</u>	<u>Mental group</u>	<u>Cost per utile</u>		<u>Net investment cost</u>		<u>Expected useful service months</u>	
		U=L.C.*	U=1	U=L.C.*	U=1	U=L.C.*	U=1
HSG	I-IIIA	\$1029	\$791	\$9203	\$3583	27.6 mo.	34.8 mo.
	IIIB	1171	754	11,392	3176	22.8	34.8
NHSG	I-IIIA	1233	694	8482	939	14.4	26.4
	IIIB	1376	682	9447	1027	13.2	26.4

* L.C. = learning curve.

The complete set of ACAS Cost and Utility Measures are shown in Tables 7.2 and 7.3.

NAVY TEST VOLUNTARY SEPARATION PROGRAM

In 1976, the Navy began a test of a voluntary separation program. Some 1,497 January 1976 enlistees who were not going to A-Schools were given the option to leave the Navy after apprentice training. These enlistees are being compared with a similar group of February 1976 enlistees who were not offered the voluntary separation option. The distribution of enlistees by education and mental group is shown in Table 7.4.

These data and the results of the test after one year's experience were provided to GRC by the Office of the Chief of Naval Operations (OP-964). The attrition rates for the first year for the test and control groups are shown in Figs. 7.5 and 7.6. The loss rates after the first year of service are projections made by OP-964 and modified slightly by GRC. The projections of loss rates for the test group are intentionally optimistic.

Table 7.2

COST AND UTILITY MEASURES
Navy Male Enlistees by Education and Mental Group
Learning Curve Utility Functions

High School Graduate, M.G. I-III AHigh School Graduate, M.G. IIIB

COST AND UTILITY MEASURES

COST AND UTILITY MEASURES

COST PER UTILE = 1029.
 NET INVESTMENT CCST = 9203.
 NET INVESTMENT CCST PER UTILE = 339.
 CCST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 38550.
 EXPECTED SERVICE YEARS = 3.4
 EXPECTED "USEFUL" SERVICE YEARS = 2.3
 EXPECTED COST = 27907.

CCST PER UTILE = 1171.
 NET INVESTMENT CCST = 11392.
 NET INVESTMENT CCST PER UTILE = 509.
 CCST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 35911.
 EXPECTED SERVICE YEARS = 3.3
 EXPECTED "USEFUL" SERVICE YEARS = 1.9
 EXPECTED COST = 26238.

77

Non-High School Graduate, M.G. I-III ANon-High School Graduate, M.G. IIIB

COST AND UTILITY MEASURES

COST AND UTILITY MEASURES

COST PER UTILE = 1233.
 NET INVESTMENT CCST = 8482.
 NET INVESTMENT CCST PER UTILE = 575.
 CCST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 45268.
 EXPECTED SERVICE YEARS = 2.5
 EXPECTED "USEFUL" SERVICE YEARS = 1.2
 EXPECTED COST = 18195.

COST PER UTILE = 1370.
 NET INVESTMENT CCST = 9447.
 NET INVESTMENT CCST PER UTILE = 733.
 CCST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 41320.
 EXPECTED SERVICE YEARS = 2.4
 EXPECTED "USEFUL" SERVICE YEARS = 1.1
 EXPECTED COST = 17726.

Table 7.3

COST AND UTILITY MEASURES

Navy Male Enlistees by Education and Mental Group
Utility Function Equal to 1

High School Graduate, M.G. I-IIIHigh School Graduate, M.G. IIIB

COST AND UTILITY MEASURES

COST PER UTILE = 791.
NET INVESTMENT COST = 3583.
NET INVESTMENT COST PER UTILE = 102.
COST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 38556.
EXPECTED SERVICE YEARS = 3.4
EXPECTED "USEFUL" SERVICE YEARS = 2.9
EXPECTED COST = 27907.

COST AND UTILITY MEASURES

COST PER UTILE = 754.
NET INVESTMENT COST = 3176.
NET INVESTMENT COST PER UTILE = 91.
COST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 35911.
EXPECTED SERVICE YEARS = 3.3
EXPECTED "USEFUL" SERVICE YEARS = 2.9
EXPECTED COST = 26238.

7-8

Non-High School Graduate, M.G. I-IIINon-High School Graduate, M.G. IIIB

COST AND UTILITY MEASURES

COST PER UTILE = 694.
NET INVESTMENT COST = 939.
NET INVESTMENT COST PER UTILE = 36.
COST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 45268.
EXPECTED SERVICE YEARS = 2.5
EXPECTED "USEFUL" SERVICE YEARS = 2.2
EXPECTED COST = 18195.

COST AND UTILITY MEASURES

COST PER UTILE = 682.
NET INVESTMENT COST = 1027.
NET INVESTMENT COST PER UTILE = 40.
COST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 41320.
EXPECTED SERVICE YEARS = 2.4
EXPECTED "USEFUL" SERVICE YEARS = 2.2
EXPECTED COST = 17726.

Table 7.4
 DISTRIBUTION OF ENLISTEES BY EDUCATION AND MENTAL GROUP
 Navy Voluntary Separation Test

<u>Quality Group</u>	<u>Education</u>	<u>Mental Group</u>	<u>Sample Number</u>
"A"	HSG	I-III A	253
"C"	HSG	IIIB, IV	514
"B"	NHSG	I-III A	202
"D"	NHSG	IIIB, IV	528
		Total	1497

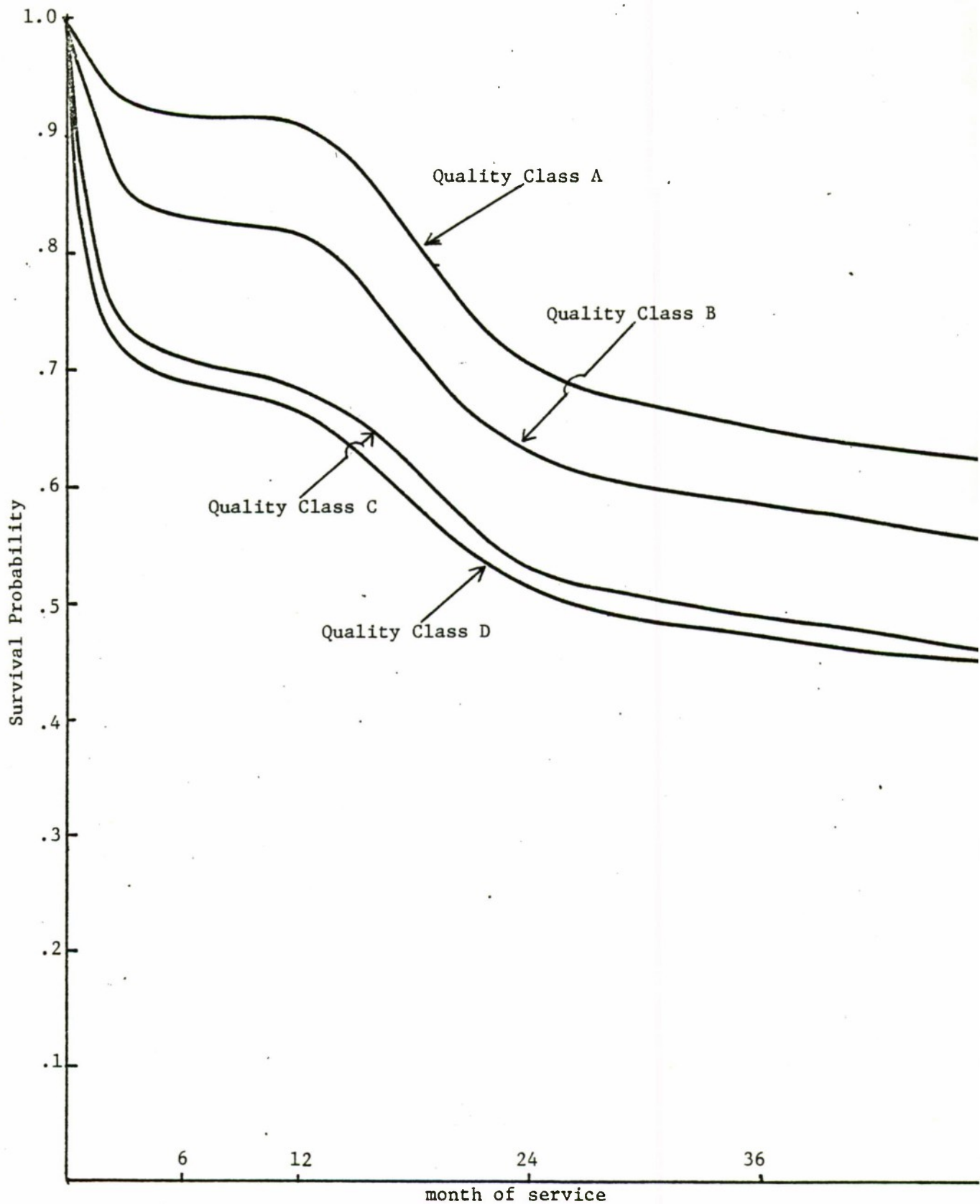


Fig. 7.5—Projected Survival Function
Navy Apprentices (no A-School)
No Voluntary Separation Option

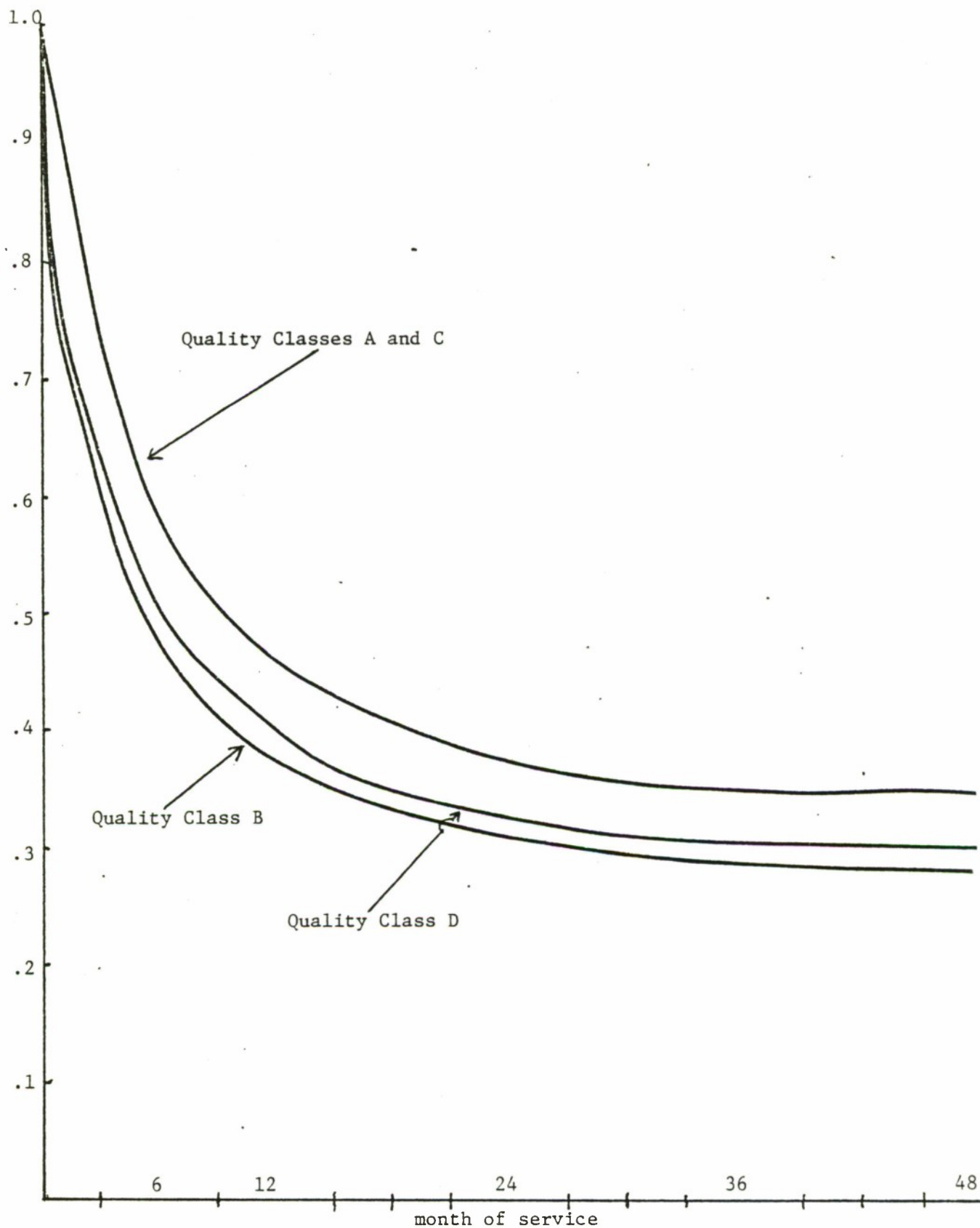


Fig. 7.6—Projected Survival Function
Navy Apprentices (no A-School)
With Voluntary Separation Option

Because these are not A-School students and many will not, therefore, gain a rating during their first term, the most appropriate utility function is assumed to be one which makes utility proportional to cost after recruit and apprentice training. This utility function was used in ACAS runs against the survival rates in Figs. 7.5 and 7.6, with cost/benefit results as summarized in Table 7.5.

Table 7.5
COST/BENEFIT STATISTICS
Navy Voluntary Separation Test Program

Quality group	Cost/Utile		Net Investment Cost		Expected Useful Service Months	
	NO-OPTOUT	OPTOUT	NO-OPTOUT	OPTOUT	NO-OPTOUT	OPTOUT
A	\$844	\$952	\$4459	\$4087	28.8 mo.	15.6 mo.
B	862	951	4732	3371	22.8	12.0
C	893	955	4829	4313	19.2	14.4
D	968	1044	5926	4675	18.0	10.8
Weighted average	907	985	5140	4275	20.9	13.0

The difference in Cost per Utile is \$78 and the Expected Useful Service Months differ by 7.9, even under the optimistic loss projections for the OPTOUT (Test) group.

Some additional statistics are relevant here. To get the same number of utiles with the OPTOUT program as without would require an increase of 61 percent in accessions of this class of enlistee. The overall Expected Cost of the 1497 NO-OPTOUT enlistees over their 4 years is \$28.38 million. To get the same number of utiles from the OPTOUT group would cost \$30.86 million.

One additional observation can be made on these data. Quality Class A high school graduate, mental group I-IIIAs who go to the apprentice schools clearly have an attrition rate which is much higher than for those who go to the A-Schools. This provides additional reinforcement to the observations by Booz, Allen and Hamilton* that not getting an A-School seat is a significant source of disenchantment for Navy enlistees.

* Op.cit.

This is a preliminary analysis of the voluntary separation option. One of the assumptions of such an option is that a significant number of potential disciplinary problem personnel will elect to voluntarily separate. This would then result in a more productive force, while reducing corrections and judicial costs. Further analysis should include possible changes to the utility function, and corrections and judicial costs.

A COMPARISON OF NAVY MALE AND FEMALE HIGH SCHOOL GRADUATES

Recently there has been considerable discussion about plans to increase the utilization of women in the military. Specifically, OASD(MRA&L) had proposed to the Navy a doubling of its female strength from 23,000 in FY 1976 to 46,000 by FY 1982. The Navy has proposed an alternative plan which they feel is more manageable and in effect would increase female strength to 35,400 by FY 1982.^{1/}

Of major concern are the manpower cost implications of this increased utilization of women, and the ACAS model can be of assistance in examining this issue. In this problem, a comparison is made between the most preferred male enlistment group — NPS male diploma graduates in M.G. I-III A — and NPS female diploma graduates (who are almost exclusively in M.G. I-III A for the Navy). The utility curves are assumed to be identical in this analysis; that is, the average rate of increase in value to the military for an individual of either cohort is the same. Finally, both cohorts were chosen from the 4-year initial term of service segment of the attrition data base.

The survival functions for these two male and female cohorts are shown on Figs. 7.7 and 7.8. On average, the male cohort has a survival likelihood three percentage points higher than his female counterpart. While the difference is noticeable, it is not very large, and closer inspection of the data reveals that the attrition rate between the 7th and 48th months is almost identical for the two cohorts — the real divergence in rates occurs during training in the first 6 months. On balance, it can be stated that for these cohorts, retention patterns are comparable, although males have a slightly more favorable rate.

^{1/} Use of Women in the Military, CDR R. W. Hunter, OASD (M&RA), Background Study, March 1977.

SURVIVAL FUNCTION

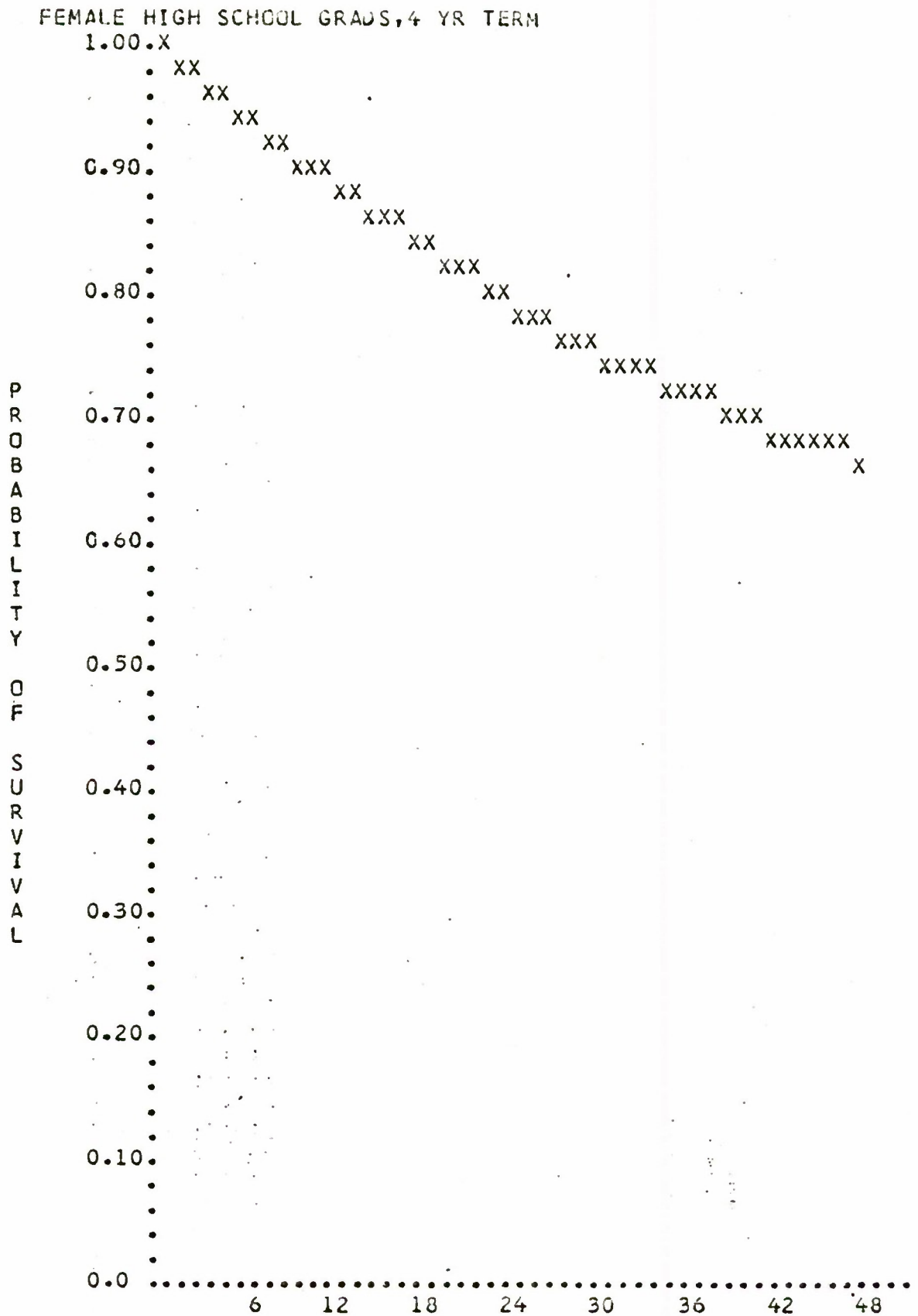


Fig. 7.7—Survival Function

SURVIVAL FUNCTION

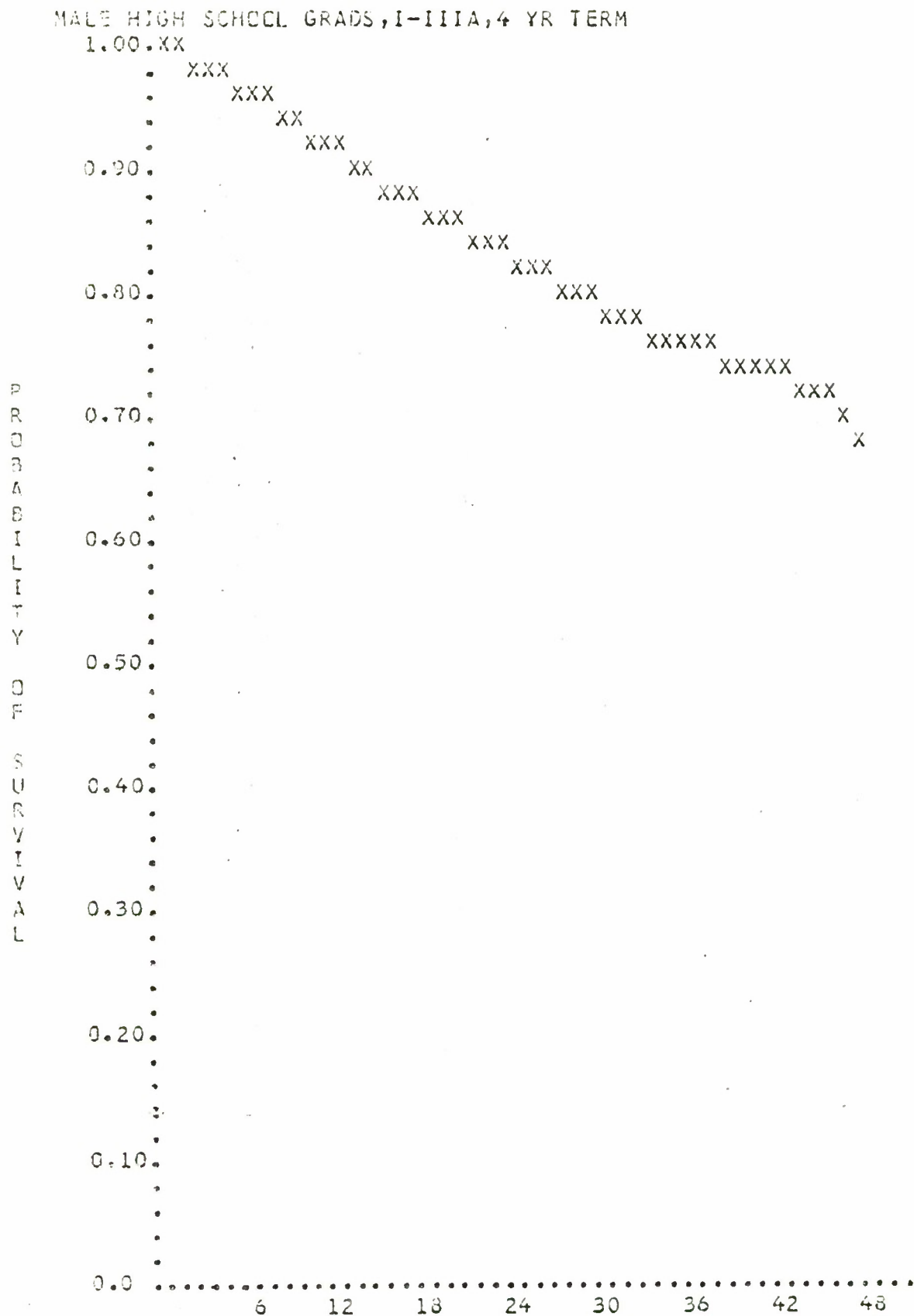


Fig. 7.8—Survival Function

Table 7.6
COST AND UTILITY MEASURES
Navy

NPS Male, HSG, M.G. I-III A

NPS Female, HSG

COST AND UTILITY MEASURES

COST AND UTILITY MEASURES

COST PER UTILE = 1029.

NET INVESTMENT COST = 9203.

NET INVESTMENT COST PER UTILE = 339.

COST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 38556.

EXPECTED SERVICE YEARS = 3.4

EXPECTED "USEFUL" SERVICE YEARS = 2.3

EXPECTED COST = 27907.

COST PER UTILE = 984.

NET INVESTMENT COST = 8020.

NET INVESTMENT COST PER UTILE = 310.

COST TO PROVIDE ONE PERSON WITH 4 YEARS SERVICE = 37811.

EXPECTED SERVICE YEARS = 3.2

EXPECTED "USEFUL" SERVICE YEARS = 2.2

EXPECTED COST = 25418.

Assuming the same utility functions for the two cohorts, Table 7.6 shows the cost/benefit measures as output from ACAS. While the male cohort's expected total service and "useful" service is 5-6 percent higher than for females, the cost indices favor females. For example, when utility is not considered, the expected cost incurred over the 4-year period for recruiting a female is \$25,418, or approximately 9 percent less than the male cohort. However, the cost to produce a person with 48 months of service (the reenlistment point) is only marginally better, \$37,811 for females and \$38,556 for males—a difference of less than 2 percent. As in this sample problem, when both cohorts are assumed to have the same utility functions, the "cost per utile" for females is about 5 percent cheaper, and the "net investment cost per utile" for females is about 9 percent less.

The primary reason for the favorable cost indices for females is their lower recruiting costs when compared to the male cohort. GRC has calculated that the average variable cost to recruit a Navy NPS enlistee is \$875 (including AFEEs processing of \$150). This figure is assigned to all accession groups that are considered to be "demand-constrained," that is, an excess supply of these individuals is available at current enlistment levels. Alternatively, the upper mental group male diploma graduates are considered to be "supply-limited" and that a more than proportionate increase in the recruiting force would have to be added to induce more enlistments from this group. Stated another way, the \$875 figure is purely a workload-derived figure that should be used for budgeting purposes if more females are to be recruited. The \$2100 figure represents the cost of the additional effort required to induce more of the supply-limited class to enlist through a more intense recruiting effort. Thus, while the average productivity for all NPS enlistments is about 25 per recruiter person-year ($90,000 \div 3,500$), the production rate of the next additional recruiter (marginal product) for the NPS male diploma graduate, M.G. I-III A, is only about nine.

On the basis of the data produced by ACAS, it appears that increased utilization of females is a cost-effective alternative to reliance on male high school graduates. This conclusion, however, is tentative and further

research is needed. Expanded utilization of women implies greater input into those skills and activities that have been historically dominated by males, and accelerated movement into these non-traditional occupations by females could raise attrition and possibly require greater recruiting effort should resistance develop in the female labor pool to entering these skills. Events such as this could markedly change the current cost picture, making males a more cost-effective choice.

8 SUMMARY OF PROGRESS IN DEVELOPMENT OF ACAS AND SUGGESTED IMPROVEMENTS TO THE SYSTEM

PROGRESS TOWARD STUDY OBJECTIVES

Objectives

The objectives of this study, as stated in Chapter 1, were to:

- Develop cost-effectiveness measures for first-term enlisted personnel integrating attrition, cost and value parameters;
- Compile as complete a data base on these parameters as could be accomplished with the Services' cooperation (but without creating significant new data systems), concentrating on those factors that can be known about an individual at the time of enlistment;
- Develop a user-oriented system of computer programs which will relate the data to the models in an easy-to-use, efficient and flexible way.

Measures of Effectiveness

On balance, these objectives have been met; in fact, when compared to the original study plan more has been accomplished than was expected. The development of cost-effectiveness measures had largely been accomplished prior to the start of this study; additional developments provided such new measures as Net Investment Cost.

Attrition Data

The Navy attrition data base prepared for ACAS is considerably more extensive than originally planned since access to the DMDC data bases provided data which were apparently not available from any other source. The Marine Corps attrition data base, also developed from DMDC data, is somewhat less satisfactory than originally expected because of the lack of deserter data in the DMDC data base. If timely access to the Marine Corps Headquarters data had been available, this problem would not have arisen.

Cost Data

The cost data base presented in Chapter 4 is felt to be quite comprehensive. However, determination of variable training costs remains a problem for all of DOD and the obvious differences in the way direct costs are calculated by the various Services leave the training cost data developed in this study as much in question as the original training cost calculations by the Services. It goes without saying that cost-effectiveness comparisons between the Services using these data are not appropriate.

Utility Data

A considerably greater effort has been expended on the development of utility, or value, measures than originally planned. It became clear as work progressed that the form of the utility function could dominate the cost-effectiveness measures. For this reason, as much of the literature as could be found was reviewed and a preliminary attempt made to integrate the results of these various studies into utility functions which, although crude, would still be better than the usual measures of utility (proportional to cost or not considered at all). The sample problems in Chapter 7 have demonstrated the extent to which different forms of the utility measure can change the outcome of the analysis.

As noted, the efforts in this study to develop utility functions should be considered to be very preliminary. It seems also clear that significant gains in analytical power can result from more extensive developmental work in this area.

ACAS Model

The Attrition Cost Analysis System (ACAS) developed in Chapter 6 exceeds original expectations. An expanded effort in ACAS development has created user options in group specifications and output controls which are more extensive than planned. In addition, the user inputs have, to as great an extent as practicable, been made free form to reduce errors caused by fields misplaced on the input cards.

Weaknesses in the System

While the objectives of the study have been met, and in several areas exceeded, there are some things that were not done in the best way. One particularly important problem arises with the groupings of Navy ratings used. The five personnel communities used to group the ratings were those used to structure the Military Pay Stratified Sample. It now seems clear that because the apparent differences in utility functions and survival functions that one might expect are greater than the differences in cost factors among the ratings, it would have been better to adopt rating groupings that were structured more in keeping with attrition and utility considerations.

A second problem arises from the necessity to restrict the classifications of enlistees to factors that would be known at the time of enlistment. Recent studies by Booz, Allen & Hamilton^{*} and OP-964 have shown that in-service factors are also significant correlates of attrition. In particular, A-School non-attendance and poor progress toward a rating seem to result in high attrition even within demographic and quality groups. Classifying enlistees by expected rating and by training path would require a historical data base that does not now exist.

SUGGESTED FURTHER REFINEMENTS AND ENHANCEMENTS TO ACAS

There are several things which could be done to make ACAS even more useful as an evaluative tool for attrition cost analyses. In the following sections, several valuable enhancements and extensions are outlined briefly. In some cases, the need for the suggested effort is seen to exist independent of ACAS; some of these efforts can yield data and information which are needed by the Services, whether or not ACAS is a part of their analytical capability.

Terminal Operated, Interactive System

The current contract will provide a batch mode, card-input type model for operation on IBM 360/370 systems. Considerable flexibility will be provided the user in terms of selection of subgroups for analysis and in

^{*}Op.cit.

modifying portions of the data base. A natural extension would convert this system to a terminal-oriented, interactive system. This would make the model easier to use, as it will permit the programs to guide the user through his various options and would reduce the number of runs not completed because of user errors. In addition, many of the likely users are already operating other manpower planning and analysis models via interactive terminal inputs and outputs.

The users' understanding of the total capabilities of the attrition cost system would also be enhanced by the accelerated learning process inherent in such a "conversational" system.

Expanded Systems for Updating the Data Base

The current contract is producing a substantial base of data on attrition and cost. Since GRC was not contractually obligated to create entirely new data systems, funds were not available to complete high quality documentation on the programs that have been written to acquire these data nor has any significant effort been expended in defining an integrated data acquisition system. Particularly needed is a well defined and documented systematic approach to periodic updating of these data bases. Such a system should also be created for terminal operations.

While some data may be expected to remain fairly stable over time, it is clear that some data will not — loss data by month of service is a particular example. Policy changes affecting one type of loss rate over the near term will usually have additional effects on other loss rates over the longer term. For example, the creation of a trainee discharge program will usually reduce other types of losses in the mid-first-term period. The Marine Corps loss data currently being acquired does not yet permit good estimates of the impact of trainee discharges on later-term loss rates.

Linked Transaction Data Base (LTDB)

In the current study, gain and loss data have been obtained for the Navy and Marine Corps by direct access of monthly transaction tapes. The resulting file is not easily updatable. What is needed is a linked transaction data base (LTDB) where all transactions for a given SSN are linked and can, therefore, be easily updated on a periodic basis. Such a file

exists for the Marines, although it contains a separate record for each transaction included. A similar file is being developed by the Bureau of Naval Personnel for the Navy.

The creation of such files, especially for the Navy, should have a high priority. These files should not be restricted to gain and loss transactions — by the inclusion of other available transaction data, other factors can be explored, such as:

- Disposition of formal school attrits
- Rates of acquisition of dependents
- Ship-to-shore rotation periods
- Flows through various schools and the rate of acquisition of ratings and NECs.

As has been discussed previously, there is a high correlation between training and attrition. An LTDB that includes training and education transactions as well as gain and loss transactions, together with demographic and quality data, would provide a powerful tool for more detailed analyses of these relationships.

Loss Rate Projection System

The loss rates estimated by the current programs are essentially static, i.e., they are the smoothed, weighted, average loss rates taken over a fairly long time period (7/72-9/76). A preferred improvement would create separate time series for loss rates of various loss-type groupings by month of service. These time series could be projected forward using statistical methods including exponential smoothing and nonlinear deseasonalizing when appropriate, and the resulting projections could be used to create the required continuation or retention functions over time of service. This approach also facilitates user modifications to reflect policy and program changes. This system would require a linked transaction data base.

This more formalized projection methodology will facilitate the estimation of loss rates by type when policy changes have shifted losses either by type or by time in service.

This is a much more extensive system of data than currently used in the attrition cost model, but it will pay for itself in greater precision in forecasting losses and improved understanding of the implications of policy decisions affecting losses.

An outline of ELIM, the Army's loss forecasting system, is given in Appendix E. While the other Services' requirements may not need the detail that ELIM incorporates, ELIM can provide the conceptual foundation for loss forecasting systems for the Marine Corps and the Navy.

Navy Training Program Data

There are several critical aspects of the Navy's training and education program which are not adequately treated in the attrition cost model because of lack of suitable data and information.

A particular problem arises in attempting to estimate the educational disposition of enlistees. Several important questions have been addressed in the attrition cost model in a very simplistic way. Some other questions have not been addressed at all for lack of suitable data. Among these questions are:

- By rating, the proportion achieving the rating without a formal school;
- By rating, attrition from the A-School and the disposition of the attrits (lost to the Navy, sent to another school, sent to the fleet as apprentices);
- By rating, differences in time to achieve the rating for A-School graduates, for designated non-A-School strikers;
- The relationship between education, mental quality, etc. and school attendance or striker designation for apprentices.

These and related questions could be addressed with the availability of a properly constructed LTDB.

On-the-Job Training Costs

The cost of OJT is poorly defined at this time. Earlier studies by Gay for the Air Force and Horowitz for the Navy suggest that the utility functions used in the current GRC model should be modified to allow the utility during the early months in the fleet to be negative to account

for the possibility that a new man may require so much supervision that the overall output of the remainder of the organization declines. A properly conducted study of actual performance by revised rating groups should yield the required modification which, when combined with the results of the studies discussed above on formal school and apprenticeships, should provide much sharper insights into the real cost of training first-term enlistees.

Improved Utility Measurements

In addition to the OJT cost studies, there are other studies related to the construction of utility functions which could have a large payoff in first-term enlisted attrition cost analyses. The differences between the shapes of utility functions for different ratings (and for non-rated enlistees) need further exploration, as does the relationship between enlistee quality and the utility function within rating or rating groups.

In addition, some of the critical assumptions for the developments of Chapter 5 need more detailed investigation. The argument that minimum longevities for advancement lag actual attainment of competency by 6 months needs to be critically examined. Assumptions underlying this argument are:

1. that pass rates are a linear function of time within the 6-month window between testing opportunities;
2. that the exams are attempted by the vast majority of enlistees the first time that they are eligible;
3. that the vast majority of enlistees pass the exams on the first attempt;
4. that the distribution of scores is unimodal; and
5. that pass rates are an adequate substitute in the analysis for score distributions.

At present, the data to fully evaluate the argument are not available. To construct a learning curve from test scores requires a series of tests over time administered to the same test-takers. This condition does not hold for advancement examinations. The only repeating test-takers are those who have failed the exam and not attrited.

All the members of a 12-month series (at a minimum, ideally, there would be continuous monitoring) of cohorts should be administered both the exams for E4 and for E5 each time those tests are offered for the duration of their initial 48 months of service, commencing with graduation from boot camp. From these data the validity of the above assumptions can be evaluated and learning curves for the individual ratings estimated.

Expansion of ACAS to Include Second-Termers

Currently, ACAS includes data for only first-termers. With the present interest in improving the career force because of anticipated shortfalls in non-prior-service enlistees, there is a greater need to be able to compare, directly, first- and second-termers. Expansion of ACAS to include second-termers would permit explicit comparisons of the relative cost-effectiveness of first- and second-termers and would, at the same time, permit the estimation of Zone A reenlistment rates by quality and demographic group.

Expansion of ACAS to Accept Enlistees Distributed Over Quality and Demographic Classes

As presently developed, ACAS will analyze one group of enlistees at a time. It should be modified to permit the user to specify a probability distribution of enlistees over quality and demographic factors so that ACAS could derive weighted cost-effectiveness measures over the user's distribution of enlistees.

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Appendix A

PRELIMINARY ANALYSIS OF ATTRITION-RELATED INFORMATION
IN NAVY ENLISTED PERSONNEL SERVICE JACKETS

Appendix A

PRELIMINARY ANALYSIS OF ATTRITION-RELATED INFORMATION
IN NAVY ENLISTED PERSONNEL SERVICE JACKETS

BACKGROUND

At the request of the Assistant Chief for Personnel Planning and Programming, GRC undertook a limited analysis of the attrition-related data and information that might be found in enlisted personnel service jackets. The primary interest in such an analysis was to determine whether the data in the jackets were of a nature and quality to permit construction of revised "Odds for Effectiveness" tables based on in-service events as a complement to the "Odds for Effectiveness" tables that are used to screen applicants prior to enlistment.

APPROACH

For this limited analysis, Pers-3D made available the service jackets of several hundred 1976 losses who were in their second year of service. Using a predefined list of factors and events compiled with the assistance of Pers-21, GRC reviewed over 200 service jackets and collected data on about 150 adverse losses. The particular factors and events covered are shown in Table A.1. Narrative summaries of events for each loss were also prepared and are available at GRC for review, although not included in this report.

RESULTS

No detailed statistical analysis of these data has been attempted. Current studies by the University of South Carolina and Booz, Allen and Hamilton, Inc., address these questions in much more comprehensive ways. Our primary intent is to indicate what data are generally available in the Service jackets.

The detailed, coded results of this data collection, together with code definitions, are given in Annex A to this appendix.

Table A.1

LIST OF FACTORS AND EVENTS COMPILED FOR ANALYSIS OF
NAVY ENLISTED SECOND-YEAR ADVERSE LOSSES

1. Age at enlistment
2. Education
3. AFQT score
4. Term of enlistment
5. Enlistment by Service
6. Race
7. Number of dependents at time of:
 - a. Enlistment
 - b. Separation
8. Number of parents at time of:
 - a. Enlistment
 - b. Separation
9. Unit
10. Performance
 - a. Last score
 - b. Trend
11. Rating
12. Number of CO non-judicial punishments
13. Number of courts-martial
14. Desertions
15. Drug usage
16. Problem time (months)
17. Type of discharge

The evaluation of these data began with one basic understanding — these were a very biased sample of enlistees. Only when the results can be compared to those for enlistees who are not losses can any valid judgment be made about the effect of any of these factors on eventual attrition. Clearly, such a comparison requires a much more extensive data collection effort, both to include non-losses and to provide a satisfactory level of statistical significance in the resulting "Odds for Effectiveness" tables.

Viewed within the constraints described above, it can, nonetheless, be seen that there are data in the service jackets which, if properly integrated, could be used for in-service attrition prediction, especially if combined with some pre-service data. On the other hand, certain factors which have been discussed in the USC and BA&H studies cannot be tracked with data in the service jackets, at least not in the sample reported here. Generally speaking, the jackets do not contain detailed data on why, for example, an enlistee goes UA; therefore, family problems which appear so prominently in the BA&H^{*} study cannot be identified after the fact from the service records. Another potentially vital factor not usually identifiable in these records is the enlistee's progress toward his rating, unless he was an A-School graduate. While the great majority of losses were non-rated (see Tables A.5 and A.14), it would be worthwhile to know the extent to which those non-rated losses who did not go to A-schools were designated strikers. Such information is only occasionally available in the records (or else they were almost all not striking).

CONCLUSIONS

In summary, it appears that constructing "Odds for Effectiveness" tables based on in-service factors is feasible. The factors that would affect the OFE should be available in the service jacket or to the

^{*}Booz, Allen and Hamilton, Inc., "Exploratory Development Research of U.S. Navy/Marine Corps Personnel, Phase 1, Factors Affecting Attrition, (Draft)," May 1977.

command in the fleet from other sources. However, some of the most pertinent OFE information is not adequately reflected in the service jackets. Collecting data of a quality suitable for construction of OFE tables will require both a more extensive collection of data from the Service records and the identification and use of other sources available in fleet commands.

SUMMARY OF DATA COLLECTED

This final section presents some simple tables of results of classifying the sample of adverse losses in various ways. The reader is again cautioned that most of these comparisons have to be viewed in the context of what is true, or expected to be true, in the general fleet. Also included in these tables is the number of cases where no data were available, or where the service jacket was known to be incomplete.

Table A.2

DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR
LOSSES BY TYPE OF DISCHARGE

Code	Type of discharge	Number of cases
<u>Honorable</u>		
01	Personal use of drugs, exemption	1
07	Expiration of term of obligated service, USNR	24
11	For immediate reenlistment	7
12	Early release, USNR, to go to college	2
13	Hardship/dependency	3
14	Physical disability	15
17	Alien	1
18	To accept commission	2
19	Appointed midshipman, USNav Academy	3
	Subtotal	58
<u>General</u>		
02	Unsuitability-apathy, defective attitude	21
03	Unsuitability-personality disorders	18
04	Burden to command-frequent involvement with civil and military authorities	49
05	Unsuitability-fraudulent enlistment	2
06	Undesirable for good of service	7
08	Discharge not decided/reported	46
10	Death	3
16	Conscientious objector	1
20	Unapprehended deserter	1
	Subtotal	148
	Total	206

Table A.3

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY EDUCATION AND MENTAL GROUP

Mental Group	Diploma HS Graduates	Non-HS Graduates	Total
I-III	55	89	144
IV	3	0	3
Total	58	89	147
<u>Percentage Distribution</u>			
I-III	37.5	60.5	98.0
IV	2.0	0	2.0
Total	39.5	60.5	100.0

Table A.4

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY EDUCATION AND TERM OF ENLISTMENT

Term of Enlistment	Diploma HS Graduates	Non-HS Graduates	Total
3 Year USN	5	19	24
4 Year USN	23	40	63
6 Year USNR-R (CACHE)	24	21	45
6 Year USNR	6	9	15
Total	58	89	147
<u>Percentage Distribution</u>			
3 Year USN	3.4	12.9	16.3
4 Year USN	15.7	27.2	42.9
6 Year USNR-R (CACHE)	16.3	14.3	30.6
6 Year USNR	4.1	6.1	10.2
Total	39.5	60.5	100.0

Table A.5

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY RATING AND EDUCATION

Rating	Diploma HS graduate	Non-HS graduate	Total
Rated	3	2	5
Non-rated	52	86	138
E-3's	(11)	(15)	(26)
E-1's and 2's	(41)	(71)	(112)
Total	55	88	143
<u>Percentage Distribution</u>			
Rated	2.1	1.4	3.5
Non-rated	36.4	60.1	96.5
E-3's	(7.7)	(10.5)	(18.2)
E-1's and 2's	(28.7)	(49.6)	(78.3)
Total	38.5	61.5	100.0
5 cases had no information			

Table A.6

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY DRUG CODE AND RACE

Race	Indications of Drug Abuse			Total
	Heavy	Some	None	
White	22	7	79	108
Black	3	1	10	14
Other	0	0	1	1
Total	25	8	90	123
<u>Percentage Distribution</u>				
White	17.9	5.7	64.2	87.8
Black	2.4	0.8	8.1	11.4
Other	0.0	0.0	0.8	0.8
Total	20.3	6.5	73.2	100.0
25 cases had no information				

Table A.7

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY TYPE OF DISCHARGE CODE

Type	Number	Percentage distribution
Honorable	5	5.0
General	88	87.1
Undesirable	8	7.9
Total	101	100.0
47 cases had no information on discharge.		

Table A.8

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY UNIT CODE

Code	Definition	Number	Percentage distribution
1	CONUS shore duty	7	4.9
2	Arduous sea duty	129	89.6
7	School	8	5.5
Total		144	100.0
4 cases had no information on unit code.			

Table A.9

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY PERFORMANCE TREND CODE

Code		Number	Percentage distribution
1	Upward trend	2	3.0
2	Level trend	32	47.8
3	Downward trend	33	49.2
Total		67	100.0

81 cases had insufficient information to determine performance
trend

Table A.10

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY NUMBER OF DISCIPLINARY ACTIONS

Number of disciplinary actions	Cases	Percentage distribution
0	8	6.2
1	37	28.7
2	28	21.7
3	22	17.0
4 or more	34	26.4
Total	129	100.0

19 cases were pending disciplinary action.

Table A.11

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY NUMBER OF PROBLEM MONTHS

Months	Cases
1	0
2	2
3	7
4	12
5	6
6	11
7	4
8	9
9	10
10	7
11	5
12	6
13	2
14	5
15	3
16	6
17	4
Total	99

49 cases had no information

Table A.12

NAVY ENLISTED SECOND-YEAR ADVERSE LOSSES
FREQUENCY OF DECLARED DESERTION

	Number	Percent
Declared deserters	79	53.4
Not deserters	55	37.2
No information	14	8.4
Total	148	100.0

Table A.13

FREQUENCY DISTRIBUTION OF NUMBER OF MILES FROM HOME
AT TIME OF REPORTED UNAUTHORIZED ABSENCE

Number of miles from home	Number of UA incidents *	Percent
0 - 299	23	16.0
300 - 599	29	20.1
600 - 899	29	20.1
900 - 1199	19	13.2
1200 - 1499	5	3.5
1500 - 1799	4	2.8
1800 - 2099	8	5.6
2100 - 2399	5	3.5
2400 - 2699	3	2.1
2700 - 2999	8	5.6
3000 - 3299	2	1.4
Overseas	9	6.1
Total Reported	144	100.0

* 4 cases not classifiable.

Table A.14

FREQUENCY DISTRIBUTION OF NAVY ENLISTED SECOND-YEAR ADVERSE
LOSSES BY EDUCATION AND TRAINING

Training	Diploma HS graduate	Non-HS graduate	Total
"A" School			
Graduate	33	35	68
Non-graduate	2	5	7
Academic	(1)	(3)	(4)
Discipline	(0)	(2)	(2)
Administrative	(1)	(0)	(1)
Submarine school graduate	2	2	4
Technical/maintenance school completed	1	0	1
No formal school training	15	44	59
Total	53	86	139

9 cases had no information

Percent Distribution

"A" School			
Graduate	23.8	25.2	49.0
Non-graduate	1.4	3.6	5.0
Academic	(0.7)	(2.2)	(2.9)
Discipline	(0.0)	(1.4)	(1.4)
Administrative	(0.7)	(0.0)	(0.7)
Submarine school graduate	1.4	1.4	2.8
Technical/maintenance school completed	0.7	0.0	0.7
No formal school training	10.8	31.7	42.5
Total	38.1	61.9	100.0

ANNEX A1
APPENDIX A

Annex A1 presents in Table A1.1 the list of factors, events and codes referred to in Appendix A which GRC used to review over 200 service jackets and collect data on 148 adverse losses. This list was compiled with the assistance of PERS-21.

Table A1.2 shows the detailed coded results of the data collection. Missing information is coded "9."

Table A1.1

LIST OF FACTORS AND EVENTS FOR THE ANALYSIS OF NAVY
ENLISTED SECOND-YEAR ADVERSE LOSSES

<u>Factor/event</u>	<u>Definition</u>
Sequence number	1 - 148
Age at enlistment	17 - 26
Education	1 = Diploma high school graduate 2 = non-high school graduate
AFQT score	Actual percentile score
Term of enlistment	Number of years = 3-6
Service of enlistment	1 = USN 2 = USNR 3 = USNR-R CACHE
Race	1 = white 2 = black 3 = other
Number of dependents at enlistment	0 - 8
Number of dependents at separation	0 - 8
Number of parents at enlistment	0 - 2
Number of parents at separation	0 - 2

Table A1.1 (cont'd)

<u>Factor/event</u>	<u>Definition</u>
Unit	1 = CONUS shore duty 2 = Arduous sea duty 3 = Overseas shore duty 4 = Nonrotated sea duty 5 = Neutral duty 6 = Preferred overseas shore duty 7 = School
Performance, last score	1 = Below 3.0 2 = 3.2 - 3.4 3 = 3.6 and above
Performance trend	1 = Upward 2 = Level 3 = Downward
Rating	Actual rating
Number of CO NJP's	0 - 4
Number of courts-martial	0 - 4
Deserter case	1 = Unapprehended deserter 2 = Declared deserter 0 = Not a deserter
Drugs	1 = Heavy indication of drug use 3 = Some indication of drug use 4 = No indication of drug use
Problem time	Number of months between first reported incident and discharge
Type discharge	1 = Honorable 2 = General 3 = Undesirable
Training	1 = "A" school graduate 2 = "A" school non-graduate (academic) 3 = "A" school non-graduate (discipline) 4 = "A" school non-graduate (aptitude) 5 = "A" school non-graduate (administrative) 6 = Submarine school graduate 7 = Technical/maintenance school completed 8 = No formal school training

Table A1.2

DETAILED CODED RESULTS OF THE ANALYSIS OF NAVY ENLISTED SECOND-YEAR ADVERSE LOSSES

Sequence number	Age at enlistment	Education	AFQT score	Enlistment term	Ser-vice	Race	# of Dependents at time of enlistment			# of Parents at time of enlistment			Unit	Performance last score		Rating	Number of		Type of case		Problem time (months)	Type discharge	Training
							Enlistment	Enlistment	Enlistment	Enlistment	Enlistment	Enlistment		Unit	last score		RJP	CM	Desertion	Drugs			
1	20	1	90	4	3	1	0	0	0	2	2	2	7	9	9	SN	9	9	9	9	9	9	9
2	18	1	9	4	1	2	0	0	0	2	2	2	2	9	9	9	9	9	9	9	9	9	9
3	19	1	84	4	3	1	0	0	0	2	2	2	2	9	9	ETR	9	9	9	9	9	9	9
4	21	1	53	4	3	1	0	0	0	2	2	2	9	9	9	FN	9	9	9	9	9	9	9
5	19	1	66	6	2	1	0	0	0	2	2	2	9	9	9	9	9	9	9	9	9	9	9
6	20	1	37	6	2	1	0	0	0	2	2	2	2	9	9	SR	4	0	0	4	06	2	8
7	18	1	58	4	3	1	0	0	0	1	1	1	2	2	2	FR	4	0	0	4	12	2	2
8	19	1	73	4	3	1	0	0	0	1	1	1	7	1	2	SR	1	0	2	4	05	2	8
9	18	1	84	4	3	1	0	0	0	1	1	1	2	1	3	SR	2	0	2	3	03	2	1
10	18	1	52	4	3	1	0	0	0	1	1	1	2	1	2	HA	0	1	2	4	12	2	1
11	26	1	55	4	1	2	2	2	2	2	2	2	1	1	2	HA	4	0	2	4	14	2	7
12	19	1	57	4	3	1	0	0	0	2	2	2	2	2	2	SA	2	0	2	3	14	2	8
13	20	1	65	4	1	1	1	1	1	2	2	2	2	3	1	AA	0	1	2	4	08	2	1
14	19	1	53	4	1	1	0	0	0	2	2	2	2	9	9	HA	1	0	2	9	9	9	1
15	20	1	55	4	1	1	0	0	0	1	1	1	2	2	2	FR	1	0	2	1	08	3	1
16	18	1	81	6	2	1	0	0	0	2	2	2	1	9	9	SA	9	9	0	4	9	9	8
17	18	1	65	4	3	1	0	0	1	2	2	2	9	1	9	SR	1	0	0	4	04	2	1
18	19	1	80	4	1	1	0	0	0	1	1	1	2	1	2	SR	4	0	0	1	16	2	1
19	23	1	83	4	1	1	1	1	1	2	2	2	2	9	9	SN	1	0	2	4	9	9	1
20	19	1	23	3	1	1	0	0	0	2	2	2	2	1	3	SN	4	0	0	3	08	2	8
21	19	1	58	6	2	1	0	0	0	1	1	1	2	1	3	FA	4	0	0	4	13	2	1
22	18	1	40	4	3	1	0	0	0	2	2	2	2	1	2	AR	1	1	0	4	06	2	1
23	21	1	48	6	2	2	1	0	0	2	1	1	2	2	2	SA	3	1	2	4	06	2	1
24	20	1	51	4	1	1	0	0	1	2	2	2	2	2	2	SR	1	0	2	1	04	2	8
25	19	1	53	4	3	1	0	0	1	1	1	1	1	1	1	FR	2	0	2	4	09	2	1
26	18	1	74	4	3	1	0	0	0	2	2	2	1	9	9	SA	0	0	0	4	04	2	1
27	18	1	36	4	1	2	0	0	0	2	2	2	2	1	9	SR	2	0	2	1	11	2	8
28	17	1	61	4	1	1	0	0	0	1	1	1	2	1	2	FR	3	1	0	4	11	2	8
29	19	1	53	4	1	1	0	0	0	2	2	2	2	9	9	SR	2	0	2	9	9	9	1
30	20	1	84	4	3	1	0	0	0	1	1	1	2	1	3	SN	2	0	2	4	03	2	1
31	20	1	52	4	3	1	0	0	0	2	2	2	2	9	9	SH	9	9	2	4	9	9	1
32	19	1	78	4	1	1	0	0	0	2	2	2	2	9	9	AN	0	1	2	4	9	9	1
33	18	1	42	4	3	2	0	0	0	1	1	1	2	9	9	SA	1	0	0	4	06	2	8
34	17	1	56	4	3	1	0	0	0	1	1	1	2	1	2	SA	1	0	2	4	12	3	5
35	19	1	37	4	3	2	0	0	0	1	1	1	2	1	3	SN	4	0	0	1	16	2	8
36	18	1	70	4	1	1	0	0	0	2	2	2	2	1	3	SR	1	1	0	4	08	2	1
37	18	1	65	4	1	1	0	0	0	2	2	2	2	9	9	SA	3	0	2	4	9	9	1
38	18	1	66	4	3	1	0	0	0	2	2	2	2	2	2	FA	1	0	0	4	10	1	1
39	18	1	52	3	1	2	0	0	0	1	1	1	2	1	3	SR	2	1	2	3	13	2	8
40	19	1	88	4	1	1	0	0	0	2	2	2	2	1	3	SR	3	1	0	1	15	2	1
41	20	1	75	4	3	1	0	0	0	2	2	2	2	2	2	FA	0	0	0	4	00	1	1
42	19	1	63	4	1	1	0	0	0	1	1	1	2	2	2	AR	1	0	2	4	10	2	1
43	21	1	30	3	1	2	0	0	0	2	2	2	2	9	9	SA	4	0	2	4	14	2	8
44	19	1	54	6	2	1	0	0	0	2	2	2	2	2	2	SA	2	0	2	4	04	2	1
45	19	1	28	4	3	1	0	0	0	1	1	1	2	1	9	FN	0	1	2	4	05	2	1
46	20	1	90	4	1	1	0	0	0	9	9	9	2	9	9	HA	9	9	2	9	9	9	1

Table Al.2 (continued)

Sequence number	Age at enlistment	Education	AFQT score	Enlistment		Race	# of Dependents at time of enlistment		# of Parents at time of enlistment		Unit	Performance		Rating	Number of		Type of case		Problem time (months)	Type discharge	Training
				Term	Service		Enlistment	Separation	Enlistment	Separation		Last score	Trend		NJP	CM	Description	Drugs			
47	23	1	75	4	3	1	0	0	2	2	7	2	9	SN	0	0	0	1	00	1	6
48	18	1	54	4	3	1	0	1	2	2	2	9	9	FR	1	1	2	9	9	9	1
49	19	1	77	4	3	1	0	0	2	2	2	1	3	FR	0	1	2	4	04	2	1
50	22	1	49	4	1	1	0	2	2	2	2	9	9	FN	1	0	2	9	9	9	1
51	20	1	52	3	1	1	0	0	2	2	2	9	9	FR	1	1	9	1	9	9	8
52	18	1	58	4	1	1	0	0	2	2	2	1	2	SR	4	0	0	4	07	2	8
53	18	1	36	4	1	1	0	2	2	2	2	2	9	SR	2	0	2	1	05	2	8
54	18	1	57	4	3	1	0	0	2	2	2	1	2	FA	1	0	0	4	04	2	1
55	21	1	49	4	1	1	0	0	2	2	2	9	9	AN	2	0	2	4	9	9	1
56	20	1	90	4	1	1	0	0	1	1	2	1	3	AR	2	0	2	4	04	2	1
57	20	1	34	3	1	2	0	1	1	1	2	2	2	SR	3	0	2	4	12	3	6
58	20	1	76	4	1	1	0	0	1	1	2	1	3	FR	4	0	2	1	17	3	1
59	17	2	70	4	1	1	0	0	2	2	2	9	9	9	2	0	1	9	9	9	9
60	19	2	55	6	2	1	0	0	2	2	2	9	9	9	1	0	9	9	9	9	9
61	18	2	52	4	1	3	0	0	2	2	2	9	9	FA	3	0	2	9	9	9	1
62	17	2	75	3	1	1	0	0	2	2	2	9	9	SN	9	9	9	9	9	9	9
63	18	2	44	4	3	1	0	0	2	2	2	9	9	NM	3	0	9	9	9	9	9
64	20	2	53	4	3	2	0	0	2	2	2	2	2	SA	2	1	2	4	04	2	8
65	17	2	45	6	2	1	0	0	2	2	2	1	2	FA	2	1	0	4	08	2	8
66	18	2	36	4	1	1	0	0	1	1	2	2	1	AR	4	0	2	4	16	2	8
67	18	2	32	3	1	1	0	0	2	2	2	1	3	AA	3	0	0	1	06	2	1
68	19	2	41	3	1	1	0	0	2	2	2	1	3	FA	1	0	0	4	07	2	8
69	19	2	47	6	2	1	0	0	2	2	2	2	1	FA	4	0	0	4	09	2	8
70	18	2	90	4	1	1	0	0	2	2	2	1	1	FR	4	0	0	3	10	2	8
71	17	2	64	3	1	1	0	0	2	2	2	9	9	FN	2	0	1	1	9	9	8
72	17	2	50	3	1	1	0	0	2	2	2	9	9	AR	3	1	2	3	9	9	8
73	18	2	70	4	1	1	0	1	2	2	2	2	3	OSJ	1	0	0	1	05	2	1
74	17	2	56	4	1	1	0	0	2	2	2	2	9	SN	9	9	2	4	9	9	1
75	17	2	68	4	1	1	0	0	2	2	2	1	3	AA	0	1	2	4	17	3	8
76	18	2	83	3	1	3	0	0	1	1	2	9	9	SA	4	0	2	4	3	9	1
77	19	2	56	4	1	1	0	0	2	2	2	9	9	SA	4	0	2	4	9	9	8
78	17	2	52	3	1	1	0	0	2	2	2	1	9	FR	3	1	2	4	17	2	1
79	18	2	41	3	1	1	0	0	2	2	2	9	9	AA	1	0	2	4	9	9	8
80	20	2	84	4	1	1	0	0	1	1	2	2	3	ETR	0	0	0	4	05	2	1
81	18	2	91	4	3	1	0	0	2	2	2	1	1	FR	1	1	2	4	10	2	1
82	18	2	39	4	3	2	0	0	1	1	2	9	9	SA	9	9	9	9	9	9	8
83	18	2	47	4	1	1	0	0	2	2	2	9	9	SA	9	9	2	9	9	9	8
84	17	2	36	6	2	1	0	0	2	2	2	9	9	SR	2	1	2	1	12	3	1
85	17	2	35	4	1	1	0	0	2	2	2	2	2	SN	2	0	2	4	16	3	8
86	19	2	88	4	3	1	0	0	2	1	9	9	9	ETR	9	9	0	4	9	9	1
87	17	2	54	4	1	1	0	0	2	2	2	9	9	FR	3	1	2	4	25	2	1
88	18	2	70	4	3	1	0	0	2	2	2	9	9	FA	2	0	2	4	9	9	8
89	17	2	61	4	1	1	0	0	2	2	2	2	9	AN	0	0	0	4	00	1	8
90	19	2	57	4	3	1	0	0	2	2	7	9	9	HR	2	1	2	1	9	9	8

Table A1.2 (continued)

Sequence number	Age at enlistment	Education	AFQT score	Enlistment		Race	# of Dependents at time of Enlistment		# of Parents at time of Enlistment		Unit	Performance		Rating	Number of		Type of case		Problem time (months)	Type discharge	Train- ing
				Term	Ser-vice		Enlist-ment	Separa- tion	Enlist-ment	Separa- tion		Last score	Trend		NJP	CH	Deser- tion	Drugs			
90	19	2	57	4	3	1	0	0	2	2	2	9	9	HR	2	1	2	1	9	9	8
91	17	2	50	4	1	1	0	0	2	2	2	1	3	SR	3	0	0	4	05	2	1
92	18	2	38	4	1	2	0	0	2	2	1	9	9	SR	4	0	0	4	08	2	8
93	21	2	56	3	1	1	2	2	2	2	1	2	2	AN	0	1	0	1	02	2	8
94	17	2	68	4	1	1	0	0	2	2	2	9	9	AR	9	9	2	4	9	9	8
95	18	2	52	4	1	1	2	2	2	2	2	1	9	FR	1	1	2	4	04	2	1
96	17	2	70	6	2	2	0	0	1	1	2	1	2	SR	2	1	0	4	06	2	8
97	19	2	72	4	3	1	0	0	2	2	2	1	2	AR	2	0	0	3	08	2	2
98	18	2	39	6	2	1	0	0	2	2	2	2	2	SA	4	0	0	1	11	2	3
99	17	2	40	4	1	1	0	0	2	2	2	1	2	SR	2	1	0	4	09	2	8
100	18	2	56	3	1	0	0	2	2	2	2	2	2	SR	4	0	0	1	11	2	8
101	17	2	75	4	1	1	0	0	2	2	2	1	2	AR	4	0	0	1	11	2	1
102	17	2	53	4	3	1	0	0	2	2	2	1	2	SA	4	0	0	4	09	2	2
103	17	2	42	3	1	1	0	1	2	2	2	9	9	AA	1	0	2	4	9	9	1
104	17	2	45	4	1	1	0	0	1	1	2	9	9	FR	3	0	2	4	05	1	8
105	18	2	76	4	3	1	0	0	2	2	2	1	2	FR	2	0	2	3	09	2	2
106	19	2	78	3	1	1	0	2	2	2	2	2	3	SR	2	0	2	4	04	2	8
107	17	2	51	3	1	1	0	0	1	1	2	1	2	SR	3	1	2	1	16	2	8
108	17	2	62	6	2	1	0	0	9	9	2	1	3	SR	3	1	2	4	09	2	8
109	18	2	52	3	1	2	0	0	2	2	2	9	9	FA	2	1	2	9	9	9	8
110	17	2	52	6	2	1	0	1	2	2	2	9	9	AA	9	9	2	9	9	9	1
111	18	2	63	4	3	1	0	0	2	2	2	2	9	AA	2	0	0	1	03	2	1
112	20	2	71	4	3	1	0	0	2	2	1	1	9	SR	2	1	0	4	10	2	1
113	19	2	32	4	1	1	0	0	2	2	2	2	9	SR	4	0	0	1	06	2	8
114	17	2	50	4	1	1	0	0	9	9	2	2	3	FR	3	0	2	4	09	2	1
115	19	2	36	4	1	1	0	1	2	2	2	1	9	FR	2	0	2	4	09	2	1
116	18	2	61	4	3	1	0	0	2	2	2	9	9	AR	4	0	2	4	12	2	1
117	18	2	91	4	3	1	0	0	1	1	2	1	2	SN	0	0	0	4	06	2	1
118	17	2	47	4	1	1	0	0	2	2	2	1	9	AN	1	2	2	4	09	2	1
119	18	2	36	4	1	1	0	0	1	1	2	9	9	AN	9	9	2	4	9	9	8
120	19	2	51	4	1	2	0	0	0	0	2	1	9	FA	3	0	0	4	14	2	8
121	18	2	36	4	1	1	0	1	1	1	2	2	2	FN	0	0	0	4	00	1	8
122	21	2	73	4	3	1	0	1	2	2	2	9	9	FN	9	9	2	9	9	9	1
123	17	2	60	4	3	1	0	0	2	2	2	9	9	GR	1	1	0	9	9	9	1
124	19	2	52	4	3	1	0	0	2	2	2	2	9	SA	1	0	2	4	03	1	1
125	18	2	56	4	1	1	0	0	2	2	2	1	3	SR	1	0	2	4	03	2	8
126	17	2	31	3	1	1	0	0	1	1	2	2	3	SR	3	1	0	4	07	2	8
127	18	2	48	4	1	1	0	0	2	2	2	2	3	BTJ	0	0	0	1	15	2	1
128	17	2	53	3	1	1	0	2	1	1	2	9	9	SN	2	2	2	4	9	9	8
129	17	2	73	4	1	1	0	0	2	2	2	1	3	SA	1	0	2	4	02	2	1
130	17	2	34	3	1	1	0	0	2	2	2	1	9	FR	3	0	0	1	10	2	8
131	18	2	39	4	1	2	0	2	2	2	2	9	9	SR	3	1	2	4	9	9	8
132	18	2	32	4	1	1	0	0	2	2	2	1	3	SA	4	0	0	4	17	2	8
133	21	2	34	3	1	1	0	0	2	2	7	9	9	SA	0	1	2	4	08	1	3
134	18	2	70	4	3	1	1	2	1	1	2	1	3	AN	0	1	2	4	04	2	1
135	19	2	50	6	2	1	0	0	2	2	2	9	9	FN	9	9	9	9	9	9	8

Table A1.2 (continued)

Sequence number	Age at enlistment	Education	ARQT score	Enlistment		Race	# of Dependents at time of		# of Parents at time of		Unit	Performance		Rating	Number of			Type of case		Problem time (months)	Type discharge	Training
				Term	Ser-vice		Enlistment	Separation	Enlistment	Separation		Last score	Trend		NJP	CM	Deser-tion	Drugs				
136	18	2	41	3	1	1	0	0	2	2	2	9	9	SA	1	9	2	4		9		8
137	18	2	64	4	1	1	0	0	1	1	2	1	3	FN	1	0	0	4		08	2	8
138	19	2	39	4	1	1	0	0	2	2	2	1	3	FR	1	0	2	4		06	2	6
139	17	2	49	4	3	2	0	0	2	2	2	9	9	AA	2	9	2	9		9	9	1
140	17	2	93	4	3	1	0	0	2	2	2	9	9	SN	9	9	9	9		9	9	1
141	19	2	71	4	3	1	0	0	2	2	7	1	2	AR	3	1	2	4		06	2	1
142	23	2	75	4	1	1	0	3	2	2	2	9	9	SR	1	9	9	9		9	9	1
143	18	2	57	4	1	1	0	0	2	2	7	1	3	FR	0	1	0	4		03	2	8
144	19	2	77	4	1	1	0	0	2	2	2	9	9	AR	4	0	0	4		16	3	1
145	17	2	50	4	1	1	0	0	1	1	2	9	9	FR	1	0	2	4		03	2	1
146	17	2	52	4	3	1	0	1	1	1	2	1	9	SR	0	1	0	4		04	2	6
147	18	2	32	4	1	1	0	0	1	1	2	1	2	SA	3	0	0	4		06	2	8
148	18	2	33	3	1	1	0	0	2	2	2	1	3	FA	2	0	0	4		07	2	8

Appendix B1

AVERAGE GRADE BY MONTH OF SERVICE
FOR NAVY FIRST-TERM ENLISTEES

NAVY

*****UNADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- IIIB
RACE- NON BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
2	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
3	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
4	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
5	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
6	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
7	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
8	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
9	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
10	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
11	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
12	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
13	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
14	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
15	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
16	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
17	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
18	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
19	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
20	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
21	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
22	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
23	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
24	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
25	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
26	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
27	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
28	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
29	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
30	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
31	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
32	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
33	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
34	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
35	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
36	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
37	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
38	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
39	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
40	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
41	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
42	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
43	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
44	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
45	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
46	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1
47	NO 0	NO 0	NO 0	NO 0	NO 0	NO 49	NO 49
48	AVG 0	AVG 0	AVG 0	AVG 0	AVG 0	AVG 1	AVG 1

* NO - number of enlistees in inventory on date of data acquisition
AVG - average grade of the enlistees in the inventory

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- IIB
RACE- BLACK

[illegible]

*****UNADJUSTED*****

EDUCATION LEVEL- IV
MENTAL GROUP-
RACE- NON BLACK

B-1-3

*****UNADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV
MENTAL GROUP-
RACE- BLACK

[illegible]

★★★★★ UNADJUSTED ★★★★★

EDUCATION LEVEL- I-III
MENTAL GROUP-
RACE- TOTAL

B-1-5

NAVY

*****UNADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- I118
MENTAL GROUP-
RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	AVG 40.00	AVG 80.00	AVG 30.00	AVG 0.00	AVG 30.00	AVG 1.00	AVG 1.00
2	NO 10	NO 10	NO 10	NO 05	NO 10	NO 10	NO 10
3	10	10	10	05	10	10	10
4	10	10	10	05	10	10	10
5	10	10	10	05	10	10	10
6	10	10	10	05	10	10	10
7	10	10	10	05	10	10	10
8	10	10	10	05	10	10	10
9	10	10	10	05	10	10	10
10	10	10	10	05	10	10	10
11	10	10	10	05	10	10	10
12	10	10	10	05	10	10	10
13	10	10	10	05	10	10	10
14	10	10	10	05	10	10	10
15	10	10	10	05	10	10	10
16	10	10	10	05	10	10	10
17	10	10	10	05	10	10	10
18	10	10	10	05	10	10	10
19	10	10	10	05	10	10	10
20	10	10	10	05	10	10	10
21	10	10	10	05	10	10	10
22	10	10	10	05	10	10	10
23	10	10	10	05	10	10	10
24	10	10	10	05	10	10	10
25	10	10	10	05	10	10	10
26	10	10	10	05	10	10	10
27	10	10	10	05	10	10	10
28	10	10	10	05	10	10	10
29	10	10	10	05	10	10	10
30	10	10	10	05	10	10	10
31	10	10	10	05	10	10	10
32	10	10	10	05	10	10	10
33	10	10	10	05	10	10	10
34	10	10	10	05	10	10	10
35	10	10	10	05	10	10	10
36	10	10	10	05	10	10	10
37	10	10	10	05	10	10	10
38	10	10	10	05	10	10	10
39	10	10	10	05	10	10	10
40	10	10	10	05	10	10	10
41	10	10	10	05	10	10	10
42	10	10	10	05	10	10	10
43	10	10	10	05	10	10	10
44	10	10	10	05	10	10	10
45	10	10	10	05	10	10	10
46	10	10	10	05	10	10	10
47	10	10	10	05	10	10	10
48	10	10	10	05	10	10	10
49	10	10	10	05	10	10	10
50	10	10	10	05	10	10	10
51	10	10	10	05	10	10	10
52	10	10	10	05	10	10	10
53	10	10	10	05	10	10	10
54	10	10	10	05	10	10	10
55	10	10	10	05	10	10	10
56	10	10	10	05	10	10	10
57	10	10	10	05	10	10	10
58	10	10	10	05	10	10	10
59	10	10	10	05	10	10	10
60	10	10	10	05	10	10	10
61	10	10	10	05	10	10	10
62	10	10	10	05	10	10	10
63	10	10	10	05	10	10	10
64	10	10	10	05	10	10	10
65	10	10	10	05	10	10	10
66	10	10	10	05	10	10	10
67	10	10	10	05	10	10	10
68	10	10	10	05	10	10	10
69	10	10	10	05	10	10	10
70	10	10	10	05	10	10	10
71	10	10	10	05	10	10	10
72	10	10	10	05	10	10	10
73	10	10	10	05	10	10	10
74	10	10	10	05	10	10	10
75	10	10	10	05	10	10	10
76	10	10	10	05	10	10	10
77	10	10	10	05	10	10	10
78	10	10	10	05	10	10	10
79	10	10	10	05	10	10	10
80	10	10	10	05	10	10	10
81	10	10	10	05	10	10	10
82	10	10	10	05	10	10	10
83	10	10	10	05	10	10	10
84	10	10	10	05	10	10	10
85	10	10	10	05	10	10	10
86	10	10	10	05	10	10	10
87	10	10	10	05	10	10	10
88	10	10	10	05	10	10	10
89	10	10	10	05	10	10	10
90	10	10	10	05	10	10	10
91	10	10	10	05	10	10	10
92	10	10	10	05	10	10	10
93	10	10	10	05	10	10	10
94	10	10	10	05	10	10	10
95	10	10	10	05	10	10	10
96	10	10	10	05	10	10	10
97	10	10	10	05	10	10	10
98	10	10	10	05	10	10	10
99	10	10	10	05	10	10	10
100	10	10	10	05	10	10	10

★★★★★ UNADJUSTED ★★★★★

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- MENTAL GROUP- RACE-	IV TOTAL
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	1
20-29	1
10-19	1
0-9	1
100-109	1
90-99	1
80-89	1
70-79	1
60-69	1
50-59	1
40-49	1
30-39	

B-1-7

*****IUNADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
 HENTAL GROUP- IIB
 RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*****UNADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV
MENTAL GROUP-
RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	1	0	0	0	0	0	1
2	1	0	0	0	0	0	1
3	1	0	0	0	0	0	1
4	1	0	0	0	0	0	1
5	1	0	0	0	0	0	1
6	1	0	0	0	0	0	1
7	1	0	0	0	0	0	1
8	1	0	0	0	0	0	1
9	1	0	0	0	0	0	1
10	1	0	0	0	0	0	1
11	1	0	0	0	0	0	1
12	1	0	0	0	0	0	1
13	1	0	0	0	0	0	1
14	1	0	0	0	0	0	1
15	1	0	0	0	0	0	1
16	1	0	0	0	0	0	1
17	1	0	0	0	0	0	1
18	1	0	0	0	0	0	1
19	1	0	0	0	0	0	1
20	1	0	0	0	0	0	1
21	1	0	0	0	0	0	1
22	1	0	0	0	0	0	1
23	1	0	0	0	0	0	1
24	1	0	0	0	0	0	1
25	1	0	0	0	0	0	1
26	1	0	0	0	0	0	1
27	1	0	0	0	0	0	1
28	1	0	0	0	0	0	1
29	1	0	0	0	0	0	1
30	1	0	0	0	0	0	1
31	1	0	0	0	0	0	1
32	1	0	0	0	0	0	1
33	1	0	0	0	0	0	1
34	1	0	0	0	0	0	1
35	1	0	0	0	0	0	1
36	1	0	0	0	0	0	1
37	1	0	0	0	0	0	1
38	1	0	0	0	0	0	1
39	1	0	0	0	0	0	1
40	1	0	0	0	0	0	1
41	1	0	0	0	0	0	1
42	1	0	0	0	0	0	1
43	1	0	0	0	0	0	1
44	1	0	0	0	0	0	1
45	1	0	0	0	0	0	1
46	1	0	0	0	0	0	1
47	1	0	0	0	0	0	1
48	1	0	0	0	0	0	1
49	1	0	0	0	0	0	1
50	1	0	0	0	0	0	1
51	1	0	0	0	0	0	1
52	1	0	0	0	0	0	1
53	1	0	0	0	0	0	1
54	1	0	0	0	0	0	1
55	1	0	0	0	0	0	1
56	1	0	0	0	0	0	1
57	1	0	0	0	0	0	1
58	1	0	0	0	0	0	1
59	1	0	0	0	0	0	1
60	1	0	0	0	0	0	1
61	1	0	0	0	0	0	1
62	1	0	0	0	0	0	1
63	1	0	0	0	0	0	1
64	1	0	0	0	0	0	1
65	1	0	0	0	0	0	1
66	1	0	0	0	0	0	1
67	1	0	0	0	0	0	1
68	1	0	0	0	0	0	1
69	1	0	0	0	0	0	1
70	1	0	0	0	0	0	1
71	1	0	0	0	0	0	1
72	1	0	0	0	0	0	1
73	1	0	0	0	0	0	1
74	1	0	0	0	0	0	1
75	1	0	0	0	0	0	1
76	1	0	0	0	0	0	1
77	1	0	0	0	0	0	1
78	1	0	0	0	0	0	1
79	1	0	0	0	0	0	1
80	1	0	0	0	0	0	1
81	1	0	0	0	0	0	1
82	1	0	0	0	0	0	1
83	1	0	0	0	0	0	1
84	1	0	0	0	0	0	1
85	1	0	0	0	0	0	1
86	1	0	0	0	0	0	1
87	1	0	0	0	0	0	1
88	1	0	0	0	0	0	1
89	1	0	0	0	0	0	1
90	1	0	0	0	0	0	1
91	1	0	0	0	0	0	1
92	1	0	0	0	0	0	1
93	1	0	0	0	0	0	1
94	1	0	0	0	0	0	1
95	1	0	0	0	0	0	1
96	1	0	0	0	0	0	1
97	1	0	0	0	0	0	1
98	1	0	0	0	0	0	1
99	1	0	0	0	0	0	1
100	1	0	0	0	0	0	1

NAVY

*****ADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- I-III
MENTAL GROUP- I-III
RACE- NON BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
	NO	AVG	NO	AVG	NO	AVG	NO
1	2456	1.69	879	1.61	756	1.69	156
2	1055	1.82	324	1.76	311	1.80	705
3	1055	1.15	365	1.09	323	1.13	259
4	1241	1.22	444	1.22	379	1.22	303
5	1198	1.22	472	1.22	363	1.22	345
6	1318	1.22	472	1.22	403	1.22	373
7	1568	1.22	568	1.22	479	1.22	450
8	1760	1.22	630	1.22	570	1.22	505
9	1760	1.22	630	1.22	570	1.22	505
10	2072	1.22	630	1.22	570	1.22	505
11	1053	1.22	630	1.22	570	1.22	505
12	902	1.22	630	1.22	570	1.22	505
13	967	1.22	630	1.22	570	1.22	505
14	1733	1.22	630	1.22	570	1.22	505
15	1733	1.22	630	1.22	570	1.22	505
16	1733	1.22	630	1.22	570	1.22	505
17	1733	1.22	630	1.22	570	1.22	505
18	1733	1.22	630	1.22	570	1.22	505
19	1733	1.22	630	1.22	570	1.22	505
20	1733	1.22	630	1.22	570	1.22	505
21	1733	1.22	630	1.22	570	1.22	505
22	1733	1.22	630	1.22	570	1.22	505
23	1733	1.22	630	1.22	570	1.22	505
24	1733	1.22	630	1.22	570	1.22	505
25	1733	1.22	630	1.22	570	1.22	505
26	1733	1.22	630	1.22	570	1.22	505
27	1733	1.22	630	1.22	570	1.22	505
28	1733	1.22	630	1.22	570	1.22	505
29	1733	1.22	630	1.22	570	1.22	505
30	1733	1.22	630	1.22	570	1.22	505
31	1733	1.22	630	1.22	570	1.22	505
32	1733	1.22	630	1.22	570	1.22	505
33	1733	1.22	630	1.22	570	1.22	505
34	1733	1.22	630	1.22	570	1.22	505
35	1733	1.22	630	1.22	570	1.22	505
36	1733	1.22	630	1.22	570	1.22	505
37	1733	1.22	630	1.22	570	1.22	505
38	1733	1.22	630	1.22	570	1.22	505
39	1733	1.22	630	1.22	570	1.22	505
40	1733	1.22	630	1.22	570	1.22	505
41	1733	1.22	630	1.22	570	1.22	505
42	1733	1.22	630	1.22	570	1.22	505
43	1733	1.22	630	1.22	570	1.22	505
44	1733	1.22	630	1.22	570	1.22	505
45	1733	1.22	630	1.22	570	1.22	505
46	1733	1.22	630	1.22	570	1.22	505
47	1733	1.22	630	1.22	570	1.22	505
48	1733	1.22	630	1.22	570	1.22	505

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- I-III

RACE- BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	106	106	106	106	106	106	106
2	106	106	106	106	106	106	106
3	106	106	106	106	106	106	106
4	106	106	106	106	106	106	106
5	106	106	106	106	106	106	106
6	106	106	106	106	106	106	106
7	106	106	106	106	106	106	106
8	106	106	106	106	106	106	106
9	106	106	106	106	106	106	106
10	106	106	106	106	106	106	106
11	106	106	106	106	106	106	106
12	106	106	106	106	106	106	106
13	106	106	106	106	106	106	106
14	106	106	106	106	106	106	106
15	106	106	106	106	106	106	106
16	106	106	106	106	106	106	106
17	106	106	106	106	106	106	106
18	106	106	106	106	106	106	106
19	106	106	106	106	106	106	106
20	106	106	106	106	106	106	106
21	106	106	106	106	106	106	106
22	106	106	106	106	106	106	106
23	106	106	106	106	106	106	106
24	106	106	106	106	106	106	106
25	106	106	106	106	106	106	106
26	106	106	106	106	106	106	106
27	106	106	106	106	106	106	106
28	106	106	106	106	106	106	106
29	106	106	106	106	106	106	106
30	106	106	106	106	106	106	106
31	106	106	106	106	106	106	106
32	106	106	106	106	106	106	106
33	106	106	106	106	106	106	106
34	106	106	106	106	106	106	106
35	106	106	106	106	106	106	106
36	106	106	106	106	106	106	106
37	106	106	106	106	106	106	106
38	106	106	106	106	106	106	106
39	106	106	106	106	106	106	106
40	106	106	106	106	106	106	106
41	106	106	106	106	106	106	106
42	106	106	106	106	106	106	106
43	106	106	106	106	106	106	106
44	106	106	106	106	106	106	106
45	106	106	106	106	106	106	106
46	106	106	106	106	106	106	106
47	106	106	106	106	106	106	106
48	106	106	106	106	106	106	106
49	106	106	106	106	106	106	106
50	106	106	106	106	106	106	106
51	106	106	106	106	106	106	106
52	106	106	106	106	106	106	106
53	106	106	106	106	106	106	106
54	106	106	106	106	106	106	106
55	106	106	106	106	106	106	106
56	106	106	106	106	106	106	106
57	106	106	106	106	106	106	106
58	106	106	106	106	106	106	106
59	106	106	106	106	106	106	106
60	106	106	106	106	106	106	106
61	106	106	106	106	106	106	106
62	106	106	106	106	106	106	106
63	106	106	106	106	106	106	106
64	106	106	106	106	106	106	106
65	106	106	106	106	106	106	106
66	106	106	106	106	106	106	106
67	106	106	106	106	106	106	106
68	106	106	106	106	106	106	106
69	106	106	106	106	106	106	106
70	106	106	106	106	106	106	106
71	106	106	106	106	106	106	106
72	106	106	106	106	106	106	106
73	106	106	106	106	106	106	106
74	106	106	106	106	106	106	106
75	106	106	106	106	106	106	106
76	106	106	106	106	106	106	106
77	106	106	106	106	106	106	106
78	106	106	106	106	106	106	106
79	106	106	106	106	106	106	106
80	106	106	106	106	106	106	106
81	106	106	106	106	106	106	106
82	106	106	106	106	106	106	106
83	106	106	106	106	106	106	106
84	106	106	106	106	106	106	106
85	106	106	106	106	106	106	106
86	106	106	106	106	106	106	106
87	106	106	106	106	106	106	106
88	106	106	106	106	106	106	106
89	106	106	106	106	106	106	106
90	106	106	106	106	106	106	106
91	106	106	106	106	106	106	106
92	106	106	106	106	106	106	106
93	106	106	106	106	106	106	106
94	106	106	106	106	106	106	106
95	106	106	106	106	106	106	106
96	106	106	106	106	106	106	106
97	106	106	106	106	106	106	106
98	106	106	106	106	106	106	106
99	106	106	106	106	106	106	106
100	106	106	106	106	106	106	106

*****ADJUSTED*****

HIGH SCHOOL GRADUATES

EDUCATION LEVEL-
MENTAL GROUP-
RACE-

B-1-13

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IIIA
MENTAL GROUP-
RACE- BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	21	21	21	21	21	21	21
2	21	21	21	21	21	21	21
3	21	21	21	21	21	21	21
4	21	21	21	21	21	21	21
5	21	21	21	21	21	21	21
6	21	21	21	21	21	21	21
7	21	21	21	21	21	21	21
8	21	21	21	21	21	21	21
9	21	21	21	21	21	21	21
10	21	21	21	21	21	21	21
11	21	21	21	21	21	21	21
12	21	21	21	21	21	21	21
13	21	21	21	21	21	21	21
14	21	21	21	21	21	21	21
15	21	21	21	21	21	21	21
16	21	21	21	21	21	21	21
17	21	21	21	21	21	21	21
18	21	21	21	21	21	21	21
19	21	21	21	21	21	21	21
20	21	21	21	21	21	21	21
21	21	21	21	21	21	21	21
22	21	21	21	21	21	21	21
23	21	21	21	21	21	21	21
24	21	21	21	21	21	21	21
25	21	21	21	21	21	21	21
26	21	21	21	21	21	21	21
27	21	21	21	21	21	21	21
28	21	21	21	21	21	21	21
29	21	21	21	21	21	21	21
30	21	21	21	21	21	21	21
31	21	21	21	21	21	21	21
32	21	21	21	21	21	21	21
33	21	21	21	21	21	21	21
34	21	21	21	21	21	21	21
35	21	21	21	21	21	21	21
36	21	21	21	21	21	21	21
37	21	21	21	21	21	21	21
38	21	21	21	21	21	21	21
39	21	21	21	21	21	21	21
40	21	21	21	21	21	21	21
41	21	21	21	21	21	21	21
42	21	21	21	21	21	21	21
43	21	21	21	21	21	21	21
44	21	21	21	21	21	21	21
45	21	21	21	21	21	21	21
46	21	21	21	21	21	21	21
47	21	21	21	21	21	21	21
48	21	21	21	21	21	21	21
49	21	21	21	21	21	21	21
50	21	21	21	21	21	21	21
51	21	21	21	21	21	21	21
52	21	21	21	21	21	21	21
53	21	21	21	21	21	21	21
54	21	21	21	21	21	21	21
55	21	21	21	21	21	21	21
56	21	21	21	21	21	21	21
57	21	21	21	21	21	21	21
58	21	21	21	21	21	21	21
59	21	21	21	21	21	21	21
60	21	21	21	21	21	21	21
61	21	21	21	21	21	21	21
62	21	21	21	21	21	21	21
63	21	21	21	21	21	21	21
64	21	21	21	21	21	21	21
65	21	21	21	21	21	21	21
66	21	21	21	21	21	21	21
67	21	21	21	21	21	21	21
68	21	21	21	21	21	21	21
69	21	21	21	21	21	21	21
70	21	21	21	21	21	21	21
71	21	21	21	21	21	21	21
72	21	21	21	21	21	21	21
73	21	21	21	21	21	21	21
74	21	21	21	21	21	21	21
75	21	21	21	21	21	21	21
76	21	21	21	21	21	21	21
77	21	21	21	21	21	21	21
78	21	21	21	21	21	21	21
79	21	21	21	21	21	21	21
80	21	21	21	21	21	21	21
81	21	21	21	21	21	21	21
82	21	21	21	21	21	21	21
83	21	21	21	21	21	21	21
84	21	21	21	21	21	21	21
85	21	21	21	21	21	21	21
86	21	21	21	21	21	21	21
87	21	21	21	21	21	21	21
88	21	21	21	21	21	21	21
89	21	21	21	21	21	21	21
90	21	21	21	21	21	21	21
91	21	21	21	21	21	21	21
92	21	21	21	21	21	21	21
93	21	21	21	21	21	21	21
94	21	21	21	21	21	21	21
95	21	21	21	21	21	21	21
96	21	21	21	21	21	21	21
97	21	21	21	21	21	21	21
98	21	21	21	21	21	21	21
99	21	21	21	21	21	21	21
100	21	21	21	21	21	21	21

★★★★★ADJUSTED★★★★★

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IV
MENTAL GROUP- NON BLACK
RACE-

ENG/HULL/DECK AVIATION

TECHNICAL

MONTH

TOTAL

NONE

OTHER

OCUPATION FIELD
SUPPLY

AVIATION

ENG/HULL/DECK

TECHNICAL

MONTH

[illegible]

NAVY

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IV
MENTAL GROUP-
RACE- BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPANCY FIELD	SUPPLY	OTHER	NONE	TOTAL
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
NO	13	13	6	37	11	21	159	260
AVG	1.18	1.43	1.21	1.60	1.01	1.74	1.22	1.22
AVG	1.18	1.43						

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- I-III
RACE- NON BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	SUPPLY	OTHER	NONE	TOTAL
1	373	490	302	150	117	248	343	117
2	332	173	107	50	108	88	121	102
3	139	209	125	57	106	100	139	171
4	151	198	112	54	99	100	133	160
5	191	119	173	34	160	95	131	189
6	147	173	107	52	88	91	125	109
7	137	180	111	51	91	97	123	149
8	133	175	104	39	89	97	123	149
9	105	137	85	40	70	12	97	149
10	106	139	84	40	70	12	97	149
11	90	119	75	30	53	51	86	122
12	80	105	76	30	53	51	86	122
1	132	173	107	50	106	100	139	160
2	137	180	112	54	99	100	133	160
3	133	175	104	39	89	97	123	149
4	105	137	85	40	70	12	97	149
5	106	139	84	40	70	12	97	149
6	90	119	75	30	53	51	86	122
7	80	105	76	30	53	51	86	122
8	132	173	107	50	106	100	139	160
9	137	180	112	54	99	100	133	160
10	133	175	104	39	89	97	123	149
11	105	137	85	40	70	12	97	149
12	106	139	84	40	70	12	97	149
1	90	119	75	30	53	51	86	122
2	80	105	76	30	53	51	86	122
3	132	173	107	50	106	100	139	160
4	137	180	112	54	99	100	133	160
5	133	175	104	39	89	97	123	149
6	105	137	85	40	70	12	97	149
7	106	139	84	40	70	12	97	149
8	90	119	75	30	53	51	86	122
9	80	105	76	30	53	51	86	122
10	132	173	107	50	106	100	139	160
11	137	180	112	54	99	100	133	160
12	133	175	104	39	89	97	123	149
1	105	137	85	40	70	12	97	149
2	106	139	84	40	70	12	97	149
3	90	119	75	30	53	51	86	122
4	80	105	76	30	53	51	86	122
5	132	173	107	50	106	100	139	160
6	137	180	112	54	99	100	133	160
7	133	175	104	39	89	97	123	149
8	105	137	85	40	70	12	97	149
9	106	139	84	40	70	12	97	149
10	90	119	75	30	53	51	86	122
11	80	105	76	30	53	51	86	122
12	132	173	107	50	106	100	139	160
1	137	180	112	54	99	100	133	160
2	133	175	104	39	89	97	123	149
3	105	137	85	40	70	12	97	149
4	106	139	84	40	70	12	97	149
5	90	119	75	30	53	51	86	122
6	80	105	76	30	53	51	86	122
7	132	173	107	50	106	100	139	160
8	137	180	112	54	99	100	133	160
9	133	175	104	39	89	97	123	149
10	105	137	85	40	70	12	97	149
11	106	139	84	40	70	12	97	149
12	90	119	75	30	53	51	86	122
1	80	105	76	30	53	51	86	122
2	132	173	107	50	106	100	139	160
3	137	180	112	54	99	100	133	160
4	133	175	104	39	89	97	123	149
5	105	137	85	40	70	12	97	149
6	106	139	84	40	70	12	97	149
7	90	119	75	30	53	51	86	122
8	80	105	76	30	53	51	86	122
9	132	173	107	50	106	100	139	160
10	137	180	112	54	99	100	133	160
11	133	175	104	39	89	97	123	149
12	105	137	85	40	70	12	97	149
1	106	139	84	40	70	12	97	149
2	90	119	75	30	53	51	86	122
3	80	105	76	30	53	51	86	122
4	132	173	107	50	106	100	139	160
5	137	180	112	54	99	100	133	160
6	133	175	104	39	89	97	123	149
7	105	137	85	40	70	12	97	149
8	106	139	84	40	70	12	97	149
9	90	119	75	30	53	51	86	122
10	80	105	76	30	53	51	86	122
11	132	173	107	50	106	100	139	160
12	137	180	112	54	99	100	133	160
1	133	175	104	39	89	97	123	149
2	105	137	85	40	70	12	97	149
3	106	139	84	40	70	12	97	149
4	90	119	75	30	53	51	86	122
5	80	105	76	30	53	51	86	122
6	132	173	107	50	106	100	139	160
7	137	180	112	54	99	100	133	160
8	133	175	104	39	89	97	123	149
9	105	137	85	40	70	12	97	149
10	106	139	84	40	70	12	97	149
11	90	119	75	30	53	51	86	122
12	80	105	76	30	53	51	86	122
1	132	173	107	50	106	100	139	160
2	137	180	112	54	99	100	133	160
3	133	175	104	39	89	97	123	149
4	105	137	85	40	70	12	97	149
5	106	139	84	40	70	12	97	149
6	90	119	75	30	53	51	86	122
7	80	105	76	30	53	51	86	122
8	132	173	107	50	106	100	139	160
9	137	180	112	54	99	100	133	160
10	133	175	104	39	89	97	123	149
11	105	137	85	40	70	12	97	149
12	106	139	84	40	70	12	97	149
1	90	119	75	30	53	51	86	122
2	80	105	76	30	53	51	86	122
3	132	173	107	50	106	100	139	160
4	137	180	112	54	99	100	133	160
5	133	175	104	39	89	97	123	149
6	105	137	85	40	70	12	97	149
7	106	139	84	40	70	12	97	149
8	90	119	75	30	53	51	86	122
9	80	105	76	30	53	51	86	122
10	132	173	107	50	106	100	139	160
11	137	180	112	54	99	100	133	160
12	133	175	104	39	89	97	123	149
1	105	137	85	40	70	12	97	149
2	106	139	84	40	70	12	97	149
3	90	119	75	30	53	51	86	122
4	80	105	76	30	53	51	86	122
5	132	173	107	50	106	100	139	160
6	137	180	112	54	99	100	133	160
7	133	175	104	39	89	97	123	149
8	105	137	85	40	70	12	97	149
9	106	139	84	40	70	12	97	149
10	90	119	75	30	53	51	86	122
11	80	105	76	30	53	51	86	122
12	132	173	107	50	106	100	139	160
1	137	180	112	54	99	100	133	160
2	133	175	104	39	89	97	123	149
3	105	137	85	40	70	12	97	149
4	106	139	84	40	70	12	97	149
5	90	119	75	30	53	51	86	122
6	80	105	76	30	53	51	86	122
7	132	173	107	50	106	100	139	160
8	137	180	112	54	99	100	133	160
9	133	175	104	39	89	97	123	149
10	105	137	85	40	70	12	97	149
11	106	139	84	40	70	12	97	149
12	90	119	75	30	53	51	86	122
1	80	105	76	30	53	51	86	122
2	132	173	107	50	106	100	139	160
3	137	180	112	54	99	100	133	160
4	133	175	104	39	89	97	123	149
5	105	137	85	40	70	12	97	149
6	106	139	84	40	70	12	97	149
7	90	119	75	30	53	51	86	122
8	80	105	76	30	53	51	86	122
9	132	173	107	50	106	100	139	160
10	137	180	112	54	99	100	133	160
11	133	175	104	39	89	97	123	149
12	105	137	85	40	70	12	97	149
1	106	139	84	40	70	12	97	149
2	90	119	75	30	53	51	86	122
3	80	105	76	30	53	51	86	122
4	132	173	107	50	106	100	139	160
5	137	180	112	54	99	100	133	160
6	133	175	104	39	89	97	123	149
7	105	137	85	40	70	12	97	149
8	106	139	84	40	70	12	97	149
9	90	119	75	30	53	51	86	122
10	80	105	76	30	53	51	86	122
11	132	173	107	50	106	100	139	160
12	137	180	112	54	99	100	133	160
1	133	175	104	39	89	97	123	149
2	105	137	85	40	70	12	97	149
3	106	139	84	40	70	12	97	149
4	90	119	75	30	53	51	86	122
5	80	105	76	30	53	51	86	122
6	132	173	107	50	106	100	139	160
7	137	180	112	54	99	100	133	160

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL-
MENTAL GROUP-
RACE- BLACK

NON-HIGH SCHOOL GRADUATES
I-III

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	NO 23	NO 29	NO 9	NO 18	NO 26	NO 6	NO 15
2	AVG 1.08	AVG 1.08	AVG 1.14	AVG 1.10	AVG 1.11	AVG 1.11	AVG 1.11
3	1.09	1.09	1.14	1.10	1.11	1.11	1.11
4	1.09	1.09	1.14	1.10	1.11	1.11	1.11
5	1.09	1.09	1.14	1.10	1.11	1.11	1.11
6	1.09	1.09	1.14	1.10	1.11	1.11	1.11
7	1.09	1.09	1.14	1.10	1.11	1.11	1.11
8	1.09	1.09	1.14	1.10	1.11	1.11	1.11
9	1.09	1.09	1.14	1.10	1.11	1.11	1.11
10	1.09	1.09	1.14	1.10	1.11	1.11	1.11
11	1.09	1.09	1.14	1.10	1.11	1.11	1.11
12	1.09	1.09	1.14	1.10	1.11	1.11	1.11
13	1.09	1.09	1.14	1.10	1.11	1.11	1.11
14	1.09	1.09	1.14	1.10	1.11	1.11	1.11
15	1.09	1.09	1.14	1.10	1.11	1.11	1.11
16	1.09	1.09	1.14	1.10	1.11	1.11	1.11
17	1.09	1.09	1.14	1.10	1.11	1.11	1.11
18	1.09	1.09	1.14	1.10	1.11	1.11	1.11
19	1.09	1.09	1.14	1.10	1.11	1.11	1.11
20	1.09	1.09	1.14	1.10	1.11	1.11	1.11
21	1.09	1.09	1.14	1.10	1.11	1.11	1.11
22	1.09	1.09	1.14	1.10	1.11	1.11	1.11
23	1.09	1.09	1.14	1.10	1.11	1.11	1.11
24	1.09	1.09	1.14	1.10	1.11	1.11	1.11
25	1.09	1.09	1.14	1.10	1.11	1.11	1.11
26	1.09	1.09	1.14	1.10	1.11	1.11	1.11
27	1.09	1.09	1.14	1.10	1.11	1.11	1.11
28	1.09	1.09	1.14	1.10	1.11	1.11	1.11
29	1.09	1.09	1.14	1.10	1.11	1.11	1.11
30	1.09	1.09	1.14	1.10	1.11	1.11	1.11
31	1.09	1.09	1.14	1.10	1.11	1.11	1.11
32	1.09	1.09	1.14	1.10	1.11	1.11	1.11
33	1.09	1.09	1.14	1.10	1.11	1.11	1.11
34	1.09	1.09	1.14	1.10	1.11	1.11	1.11
35	1.09	1.09	1.14	1.10	1.11	1.11	1.11
36	1.09	1.09	1.14	1.10	1.11	1.11	1.11
37	1.09	1.09	1.14	1.10	1.11	1.11	1.11
38	1.09	1.09	1.14	1.10	1.11	1.11	1.11
39	1.09	1.09	1.14	1.10	1.11	1.11	1.11
40	1.09	1.09	1.14	1.10	1.11	1.11	1.11
41	1.09	1.09	1.14	1.10	1.11	1.11	1.11
42	1.09	1.09	1.14	1.10	1.11	1.11	1.11
43	1.09	1.09	1.14	1.10	1.11	1.11	1.11
44	1.09	1.09	1.14	1.10	1.11	1.11	1.11
45	1.09	1.09	1.14	1.10	1.11	1.11	1.11
46	1.09	1.09	1.14	1.10	1.11	1.11	1.11
47	1.09	1.09	1.14	1.10	1.11	1.11	1.11
48	1.09	1.09	1.14	1.10	1.11	1.11	1.11
49	1.09	1.09	1.14	1.10	1.11	1.11	1.11
50	1.09	1.09	1.14	1.10	1.11	1.11	1.11
51	1.09	1.09	1.14	1.10	1.11	1.11	1.11
52	1.09	1.09	1.14	1.10	1.11	1.11	1.11
53	1.09	1.09	1.14	1.10	1.11	1.11	1.11
54	1.09	1.09	1.14	1.10	1.11	1.11	1.11
55	1.09	1.09	1.14	1.10	1.11	1.11	1.11
56	1.09	1.09	1.14	1.10	1.11	1.11	1.11
57	1.09	1.09	1.14	1.10	1.11	1.11	1.11
58	1.09	1.09	1.14	1.10	1.11	1.11	1.11
59	1.09	1.09	1.14	1.10	1.11	1.11	1.11
60	1.09	1.09	1.14	1.10	1.11	1.11	1.11
61	1.09	1.09	1.14	1.10	1.11	1.11	1.11
62	1.09	1.09	1.14	1.10	1.11	1.11	1.11
63	1.09	1.09	1.14	1.10	1.11	1.11	1.11
64	1.09	1.09	1.14	1.10	1.11	1.11	1.11
65	1.09	1.09	1.14	1.10	1.11	1.11	1.11
66	1.09	1.09	1.14	1.10	1.11	1.11	1.11
67	1.09	1.09	1.14	1.10	1.11	1.11	1.11
68	1.09	1.09	1.14	1.10	1.11	1.11	1.11
69	1.09	1.09	1.14	1.10	1.11	1.11	1.11
70	1.09	1.09	1.14	1.10	1.11	1.11	1.11
71	1.09	1.09	1.14	1.10	1.11	1.11	1.11
72	1.09	1.09	1.14	1.10	1.11	1.11	1.11
73	1.09	1.09	1.14	1.10	1.11	1.11	1.11
74	1.09	1.09	1.14	1.10	1.11	1.11	1.11
75	1.09	1.09	1.14	1.10	1.11	1.11	1.11
76	1.09	1.09	1.14	1.10	1.11	1.11	1.11
77	1.09	1.09	1.14	1.10	1.11	1.11	1.11
78	1.09	1.09	1.14	1.10	1.11	1.11	1.11
79	1.09	1.09	1.14	1.10	1.11	1.11	1.11
80	1.09	1.09	1.14	1.10	1.11	1.11	1.11
81	1.09	1.09	1.14	1.10	1.11	1.11	1.11
82	1.09	1.09	1.14	1.10	1.11	1.11	1.11
83	1.09	1.09	1.14	1.10	1.11	1.11	1.11
84	1.09	1.09	1.14	1.10	1.11	1.11	1.11
85	1.09	1.09	1.14	1.10	1.11	1.11	1.11
86	1.09	1.09	1.14	1.10	1.11	1.11	1.11
87	1.09	1.09	1.14	1.10	1.11	1.11	1.11
88	1.09	1.09	1.14	1.10	1.11	1.11	1.11
89	1.09	1.09	1.14	1.10	1.11	1.11	1.11
90	1.09	1.09	1.14	1.10	1.11	1.11	1.11
91	1.09	1.09	1.14	1.10	1.11	1.11	1.11
92	1.09	1.09	1.14	1.10	1.11	1.11	1.11
93	1.09	1.09	1.14	1.10	1.11	1.11	1.11
94	1.09	1.09	1.14	1.10	1.11	1.11	1.11
95	1.09	1.09	1.14	1.10	1.11	1.11	1.11
96	1.09	1.09	1.14	1.10	1.11	1.11	1.11
97	1.09	1.09	1.14	1.10	1.11	1.11	1.11
98	1.09	1.09	1.14	1.10	1.11	1.11	1.11
99	1.09	1.09	1.14	1.10	1.11	1.11	1.11
100	1.09	1.09	1.14	1.10	1.11	1.11	1.11

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES	1118
MINIMAL GROUP-	
RACE- BLACK	
OCCUPATION LEVEL-	

MONTH	TECHNICAL	ENG/HULL/OECK	AVIATION	SUPPLY	OTHER	NONE	TOTAL
1	1	1	1	1	1	1	7
2	1	1	1	1	1	1	7
3	1	1	1	1	1	1	7
4	1	1	1	1	1	1	7
5	1	1	1	1	1	1	7
6	1	1	1	1	1	1	7
7	1	1	1	1	1	1	7
8	1	1	1	1	1	1	7
9	1	1	1	1	1	1	7
10	1	1	1	1	1	1	7
11	1	1	1	1	1	1	7
12	1	1	1	1	1	1	7
13	1	1	1	1	1	1	7
14	1	1	1	1	1	1	7
15	1	1	1	1	1	1	7
16	1	1	1	1	1	1	7
17	1	1	1	1	1	1	7
18	1	1	1	1	1	1	7
19	1	1	1	1	1	1	7
20	1	1	1	1	1	1	7
21	1	1	1	1	1	1	7
22	1	1	1	1	1	1	7
23	1	1	1	1	1	1	7
24	1	1	1	1	1	1	7
25	1	1	1	1	1	1	7
26	1	1	1	1	1	1	7
27	1	1	1	1	1	1	7
28	1	1	1	1	1	1	7
29	1	1	1	1	1	1	7
30	1	1	1	1	1	1	7
31	1	1	1	1	1	1	7
32	1	1	1	1	1	1	7
33	1	1	1	1	1	1	7
34	1	1	1	1	1	1	7
35	1	1	1	1	1	1	7
36	1	1	1	1	1	1	7
37	1	1	1	1	1	1	7
38	1	1	1	1	1	1	7
39	1	1	1	1	1	1	7
40	1	1	1	1	1	1	7
41	1	1	1	1	1	1	7
42	1	1	1	1	1	1	7
43	1	1	1	1	1	1	7
44	1	1	1	1	1	1	7
45	1	1	1	1	1	1	7
46	1	1	1	1	1	1	7
47	1	1	1	1	1	1	7
48	1	1	1	1	1	1	7
49	1	1	1	1	1	1	7
50	1	1	1	1	1	1	7
51	1	1	1	1	1	1	7
52	1	1	1	1	1	1	7
53	1	1	1	1	1	1	7
54	1	1	1	1	1	1	7
55	1	1	1	1	1	1	7
56	1	1	1	1	1	1	7
57	1	1	1	1	1	1	7
58	1	1	1	1	1	1	7
59	1	1	1	1	1	1	7
60	1	1	1	1	1	1	7
61	1	1	1	1	1	1	7
62	1	1	1	1	1	1	7
63	1	1	1	1	1		

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- 11IB
MENTAL GROUP- 11IB
RACE- NON BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	NO	NO	NO	NO	NO	NO	NO
2	NO	NO	NO	NO	NO	NO	NO
3	NO	NO	NO	NO	NO	NO	NO
4	NO	NO	NO	NO	NO	NO	NO
5	NO	NO	NO	NO	NO	NO	NO
6	NO	NO	NO	NO	NO	NO	NO
7	NO	NO	NO	NO	NO	NO	NO
8	NO	NO	NO	NO	NO	NO	NO
9	NO	NO	NO	NO	NO	NO	NO
10	NO	NO	NO	NO	NO	NO	NO
11	NO	NO	NO	NO	NO	NO	NO
12	NO	NO	NO	NO	NO	NO	NO
13	NO	NO	NO	NO	NO	NO	NO
14	NO	NO	NO	NO	NO	NO	NO
15	NO	NO	NO	NO	NO	NO	NO
16	NO	NO	NO	NO	NO	NO	NO
17	NO	NO	NO	NO	NO	NO	NO
18	NO	NO	NO	NO	NO	NO	NO
19	NO	NO	NO	NO	NO	NO	NO
20	NO	NO	NO	NO	NO	NO	NO
21	NO	NO	NO	NO	NO	NO	NO
22	NO	NO	NO	NO	NO	NO	NO
23	NO	NO	NO	NO	NO	NO	NO
24	NO	NO	NO	NO	NO	NO	NO
25	NO	NO	NO	NO	NO	NO	NO
26	NO	NO	NO	NO	NO	NO	NO
27	NO	NO	NO	NO	NO	NO	NO
28	NO	NO	NO	NO	NO	NO	NO
29	NO	NO	NO	NO	NO	NO	NO
30	NO	NO	NO	NO	NO	NO	NO
31	NO	NO	NO	NO	NO	NO	NO
32	NO	NO	NO	NO	NO	NO	NO
33	NO	NO	NO	NO	NO	NO	NO
34	NO	NO	NO	NO	NO	NO	NO
35	NO	NO	NO	NO	NO	NO	NO
36	NO	NO	NO	NO	NO	NO	NO
37	NO	NO	NO	NO	NO	NO	NO
38	NO	NO	NO	NO	NO	NO	NO
39	NO	NO	NO	NO	NO	NO	NO
40	NO	NO	NO	NO	NO	NO	NO
41	NO	NO	NO	NO	NO	NO	NO
42	NO	NO	NO	NO	NO	NO	NO
43	NO	NO	NO	NO	NO	NO	NO
44	NO	NO	NO	NO	NO	NO	NO
45	NO	NO	NO	NO	NO	NO	NO
46	NO	NO	NO	NO	NO	NO	NO
47	NO	NO	NO	NO	NO	NO	NO
48	NO	NO	NO	NO	NO	NO	NO
49	NO	NO	NO	NO	NO	NO	NO
50	NO	NO	NO	NO	NO	NO	NO
51	NO	NO	NO	NO	NO	NO	NO
52	NO	NO	NO	NO	NO	NO	NO
53	NO	NO	NO	NO	NO	NO	NO
54	NO	NO	NO	NO	NO	NO	NO
55	NO	NO	NO	NO	NO	NO	NO
56	NO	NO	NO	NO	NO	NO	NO
57	NO	NO	NO	NO	NO	NO	NO
58	NO	NO	NO	NO	NO	NO	NO
59	NO	NO	NO	NO	NO	NO	NO
60	NO	NO	NO	NO	NO	NO	NO
61	NO	NO	NO	NO	NO	NO	NO
62	NO	NO	NO	NO	NO	NO	NO
63	NO	NO	NO	NO	NO	NO	NO
64	NO	NO	NO	NO	NO	NO	NO
65	NO	NO	NO	NO	NO	NO	NO
66	NO	NO	NO	NO	NO	NO	NO
67	NO	NO	NO	NO	NO	NO	NO
68	NO	NO	NO	NO	NO	NO	NO
69	NO	NO	NO	NO	NO	NO	NO
70	NO	NO	NO	NO	NO	NO	NO
71	NO	NO	NO	NO	NO	NO	NO
72	NO	NO	NO	NO	NO	NO	NO
73	NO	NO	NO	NO	NO	NO	NO
74	NO	NO	NO	NO	NO	NO	NO
75	NO	NO	NO	NO	NO	NO	NO
76	NO	NO	NO	NO	NO	NO	NO
77	NO	NO	NO	NO	NO	NO	NO
78	NO	NO	NO	NO	NO	NO	NO
79	NO	NO	NO	NO	NO	NO	NO
80	NO	NO	NO	NO	NO	NO	NO
81	NO	NO	NO	NO	NO	NO	NO
82	NO	NO	NO	NO	NO	NO	NO
83	NO	NO	NO	NO	NO	NO	NO
84	NO	NO	NO	NO	NO	NO	NO
85	NO	NO	NO	NO	NO	NO	NO
86	NO	NO	NO	NO	NO	NO	NO
87	NO	NO	NO	NO	NO	NO	NO
88	NO	NO	NO	NO	NO	NO	NO
89	NO	NO	NO	NO	NO	NO	NO
90	NO	NO	NO	NO	NO	NO	NO
91	NO	NO	NO	NO	NO	NO	NO
92	NO	NO	NO	NO	NO	NO	NO
93	NO	NO	NO	NO	NO	NO	NO
94	NO	NO	NO	NO	NO	NO	NO
95	NO	NO	NO	NO	NO	NO	NO
96	NO	NO	NO	NO	NO	NO	NO
97	NO	NO	NO	NO	NO	NO	NO
98	NO	NO	NO	NO	NO	NO	NO
99	NO	NO	NO	NO	NO	NO	NO
100	NO	NO	NO	NO	NO	NO	NO

NAVY

AVERAGE RANK IN THE NTH MONTH

NON-HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IV
MENTAL GROUP- NON BLACK
RACE-

EDUCATION LEVEL- IV
MENTAL GROUP- NON BLACK
RACE-

[illegible]

NAVY

AVERAGE RANK IN THE NTH MONTH

NON-HIGH SCHOOL GRADUATES

EDUCATION LEVEL -

MENTAL GROUP-
RACE- BLACK

[illegible]

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- I-IIIa

RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	2654	1590	954	1223	802	499	7710
2	2954	1590	954	1223	802	499	7710
3	1067	657	348	503	293	180	2312
4	1102	679	348	503	293	180	2312
5	1123	794	400	585	339	202	2369
6	1136	794	400	585	339	202	2369
7	1136	794	400	585	339	202	2369
8	1136	794	400	585	339	202	2369
9	1136	794	400	585	339	202	2369
10	1136	794	400	585	339	202	2369
11	1136	794	400	585	339	202	2369
12	1136	794	400	585	339	202	2369
13	1136	794	400	585	339	202	2369
14	1136	794	400	585	339	202	2369
15	1136	794	400	585	339	202	2369
16	1136	794	400	585	339	202	2369
17	1136	794	400	585	339	202	2369
18	1136	794	400	585	339	202	2369
19	1136	794	400	585	339	202	2369
20	1136	794	400	585	339	202	2369
21	1136	794	400	585	339	202	2369
22	1136	794	400	585	339	202	2369
23	1136	794	400	585	339	202	2369
24	1136	794	400	585	339	202	2369
25	1136	794	400	585	339	202	2369
26	1136	794	400	585	339	202	2369
27	1136	794	400	585	339	202	2369
28	1136	794	400	585	339	202	2369
29	1136	794	400	585	339	202	2369
30	1136	794	400	585	339	202	2369
31	1136	794	400	585	339	202	2369
32	1136	794	400	585	339	202	2369
33	1136	794	400	585	339	202	2369
34	1136	794	400	585	339	202	2369
35	1136	794	400	585	339	202	2369
36	1136	794	400	585	339	202	2369
37	1136	794	400	585	339	202	2369
38	1136	794	400	585	339	202	2369
39	1136	794	400	585	339	202	2369
40	1136	794	400	585	339	202	2369
41	1136	794	400	585	339	202	2369
42	1136	794	400	585	339	202	2369
43	1136	794	400	585	339	202	2369
44	1136	794	400	585	339	202	2369
45	1136	794	400	585	339	202	2369
46	1136	794	400	585	339	202	2369
47	1136	794	400	585	339	202	2369
48	1136	794	400	585	339	202	2369

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- III B
MENTAL GROUP-
RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	NO 444	NO 467	NO 275	NO 644	NO 357	NO 691	NO 2878
2	AVG 1.20	AVG 1.19	AVG 1.19	AVG 1.12	AVG 1.17	AVG 1.17	AVG 1.17
3	1.27	1.27	1.27	1.30	1.27	1.27	1.27
4	1.92	1.92	1.92	1.89	1.90	1.90	1.90
5	1.34	1.34	1.34	1.02	1.01	1.01	1.01
6	1.34	1.34	1.34	1.02	1.01	1.01	1.01
7	1.34	1.34	1.34	1.02	1.01	1.01	1.01
8	1.34	1.34	1.34	1.02	1.01	1.01	1.01
9	1.34	1.34	1.34	1.02	1.01	1.01	1.01
10	1.34	1.34	1.34	1.02	1.01	1.01	1.01
11	1.34	1.34	1.34	1.02	1.01	1.01	1.01
12	1.34	1.34	1.34	1.02	1.01	1.01	1.01
13	1.34	1.34	1.34	1.02	1.01	1.01	1.01
14	1.34	1.34	1.34	1.02	1.01	1.01	1.01
15	1.34	1.34	1.34	1.02	1.01	1.01	1.01
16	1.34	1.34	1.34	1.02	1.01	1.01	1.01
17	1.34	1.34	1.34	1.02	1.01	1.01	1.01
18	1.34	1.34	1.34	1.02	1.01	1.01	1.01
19	1.34	1.34	1.34	1.02	1.01	1.01	1.01
20	1.34	1.34	1.34	1.02	1.01	1.01	1.01
21	1.34	1.34	1.34	1.02	1.01	1.01	1.01
22	1.34	1.34	1.34	1.02	1.01	1.01	1.01
23	1.34	1.34	1.34	1.02	1.01	1.01	1.01
24	1.34	1.34	1.34	1.02	1.01	1.01	1.01
25	1.34	1.34	1.34	1.02	1.01	1.01	1.01
26	1.34	1.34	1.34	1.02	1.01	1.01	1.01
27	1.34	1.34	1.34	1.02	1.01	1.01	1.01
28	1.34	1.34	1.34	1.02	1.01	1.01	1.01
29	1.34	1.34	1.34	1.02	1.01	1.01	1.01
30	1.34	1.34	1.34	1.02	1.01	1.01	1.01
31	1.34	1.34	1.34	1.02	1.01	1.01	1.01
32	1.34	1.34	1.34	1.02	1.01	1.01	1.01
33	1.34	1.34	1.34	1.02	1.01	1.01	1.01
34	1.34	1.34	1.34	1.02	1.01	1.01	1.01
35	1.34	1.34	1.34	1.02	1.01	1.01	1.01
36	1.34	1.34	1.34	1.02	1.01	1.01	1.01
37	1.34	1.34	1.34	1.02	1.01	1.01	1.01
38	1.34	1.34	1.34	1.02	1.01	1.01	1.01
39	1.34	1.34	1.34	1.02	1.01	1.01	1.01
40	1.34	1.34	1.34	1.02	1.01	1.01	1.01
41	1.34	1.34	1.34	1.02	1.01	1.01	1.01
42	1.34	1.34	1.34	1.02	1.01	1.01	1.01
43	1.34	1.34	1.34	1.02	1.01	1.01	1.01
44	1.34	1.34	1.34	1.02	1.01	1.01	1.01
45	1.34	1.34	1.34	1.02	1.01	1.01	1.01
46	1.34	1.34	1.34	1.02	1.01	1.01	1.01
47	1.34	1.34	1.34	1.02	1.01	1.01	1.01
48	1.34	1.34	1.34	1.02	1.01	1.01	1.01

NAVY

*****ADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL-
MENTAL GROUP- IV
RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
NO	AVG	NO	AVG	NO	AVG	NO	AVG
1	91	1	1	1	1	1	1
2	17	1	1	1	1	1	1
3	124	1	1	1	1	1	1
4	30	1	1	1	1	1	1
5	37	1	1	1	1	1	1
6	31	1	1	1	1	1	1
7	46	1	1	1	1	1	1
8	69	1	1	1	1	1	1
9	71	1	1	1	1	1	1
10	79	1	1	1	1	1	1
11	104	1	1	1	1	1	1
12	33	1	1	1	1	1	1
13	33	1	1	1	1	1	1
14	33	1	1	1	1	1	1
15	33	1	1	1	1	1	1
16	33	1	1	1	1	1	1
17	33	1	1	1	1	1	1
18	33	1	1	1	1	1	1
19	33	1	1	1	1	1	1
20	33	1	1	1	1	1	1
21	33	1	1	1	1	1	1
22	33	1	1	1	1	1	1
23	33	1	1	1	1	1	1
24	33	1	1	1	1	1	1
25	33	1	1	1	1	1	1
26	33	1	1	1	1	1	1
27	33	1	1	1	1	1	1
28	33	1	1	1	1	1	1
29	33	1	1	1	1	1	1
30	33	1	1	1	1	1	1
31	33	1	1	1	1	1	1
32	33	1	1	1	1	1	1
33	33	1	1	1	1	1	1
34	33	1	1	1	1	1	1
35	33	1	1	1	1	1	1
36	33	1	1	1	1	1	1
37	33	1	1	1	1	1	1
38	33	1	1	1	1	1	1
39	33	1	1	1	1	1	1
40	33	1	1	1	1	1	1
41	33	1	1	1	1	1	1
42	33	1	1	1	1	1	1
43	33	1	1	1	1	1	1
44	33	1	1	1	1	1	1
45	33	1	1	1	1	1	1
46	33	1	1	1	1	1	1
47	33	1	1	1	1	1	1
48	33	1	1	1	1	1	1

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- I-III
RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	396. 1.09	519. 1.09	312. 1.09	155. 1.09	268. 1.09	409. 1.09	2063. 1.09
2	139. 1.09	182. 1.09	113. 1.09	57. 1.09	111. 1.09	141. 1.09	670. 1.09
3	149. 1.09	196. 1.09	124. 1.09	59. 1.09	101. 1.09	170. 1.09	775. 1.09
4	156. 1.09	199. 1.09	125. 1.09	61. 1.09	105. 1.09	155. 1.09	408. 1.09
5	144. 1.09	194. 1.09	118. 1.09	37. 1.09	100. 1.09	146. 1.09	764. 1.09
6	136. 1.09	184. 1.09	109. 1.09	35. 1.09	94. 1.09	133. 1.09	720. 1.09
7	134. 1.09	181. 1.09	112. 1.09	34. 1.09	94. 1.09	133. 1.09	711. 1.09
8	107. 1.09	141. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
9	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
10	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
11	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
12	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
13	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
14	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
15	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
16	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
17	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
18	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
19	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
20	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
21	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
22	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
23	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
24	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
25	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
26	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
27	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
28	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
29	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
30	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
31	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
32	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
33	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
34	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
35	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
36	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
37	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
38	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
39	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
40	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
41	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
42	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
43	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
44	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
45	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
46	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
47	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09
48	109. 1.09	143. 1.09	110. 1.09	45. 1.09	94. 1.09	107. 1.09	554. 1.09

*****ADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES

MENTAL GROUP- IIIIR

RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	NO 64	NO 133	NO 58	NO 49	NO 66	NO 369	NO 739
2	AVG 1.06	AVG 1.07	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
3	NO 227	NO 135	NO 18	NO 15	NO 237	NO 113	NO 739
4	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
5	NO 55	NO 104	NO 45	NO 37	NO 56	NO 151	NO 739
6	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
7	NO 124	NO 139	NO 17	NO 14	NO 19	NO 107	NO 739
8	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
9	NO 323	NO 64	NO 20	NO 27	NO 23	NO 130	NO 739
10	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
11	NO 223	NO 43	NO 19	NO 16	NO 22	NO 119	NO 739
12	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
13	NO 205	NO 46	NO 12	NO 15	NO 16	NO 86	NO 739
14	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
15	NO 115	NO 31	NO 13	NO 12	NO 15	NO 87	NO 739
16	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
17	NO 134	NO 39	NO 30	NO 12	NO 15	NO 196	NO 739
18	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
19	NO 59	NO 120	NO 32	NO 46	NO 9	NO 134	NO 739
20	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
21	NO 102	NO 185	NO 80	NO 72	NO 10	NO 155	NO 739
22	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
23	NO 103	NO 197	NO 81	NO 74	NO 10	NO 155	NO 739
24	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
25	NO 63	NO 134	NO 55	NO 50	NO 6	NO 307	NO 739
26	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
27	NO 54	NO 107	NO 45	NO 29	NO 4	NO 370	NO 739
28	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
29	NO 48	NO 183	NO 42	NO 32	NO 3	NO 165	NO 739
30	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
31	NO 48	NO 110	NO 30	NO 19	NO 3	NO 193	NO 739
32	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
33	NO 45	NO 179	NO 30	NO 17	NO 3	NO 193	NO 739
34	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
35	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
36	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
37	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
38	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
39	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
40	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
41	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
42	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
43	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
44	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
45	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
46	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
47	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
48	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07
49	NO 45	NO 30	NO 10	NO 17	NO 3	NO 193	NO 739
50	AVG 1.07	AVG 1.09	AVG 1.06	AVG 1.07	AVG 1.07	AVG 1.07	AVG 1.07

NAVY

*****ADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV
NON-HIGH SCHOOL GRADUATES
MENTAL GROUP-
RACE- TOTAL

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	NO 5	NO 11	NO 3	NO 5	NO 9	NO 57	NO 90
2	AVG 1.24	AVG 1.00	AVG 1.00	AVG 1.00	AVG 1.00	AVG 1.00	AVG 1.00
3	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5	1.00	1.00	1.00	1.00	1.00	1.00	1.00
6	1.00	1.00	1.00	1.00	1.00	1.00	1.00
7	1.00	1.00	1.00	1.00	1.00	1.00	1.00
8	1.00	1.00	1.00	1.00	1.00	1.00	1.00
9	1.00	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00
17	1.00	1.00	1.00	1.00	1.00	1.00	1.00
18	1.00	1.00	1.00	1.00	1.00	1.00	1.00
19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00
21	1.00	1.00	1.00	1.00	1.00	1.00	1.00
22	1.00	1.00	1.00	1.00	1.00	1.00	1.00
23	1.00	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25	1.00	1.00	1.00	1.00	1.00	1.00	1.00
26	1.00	1.00	1.00	1.00	1.00	1.00	1.00
27	1.00	1.00	1.00	1.00	1.00	1.00	1.00
28	1.00	1.00	1.00	1.00	1.00	1.00	1.00
29	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00
31	1.00	1.00	1.00	1.00	1.00	1.00	1.00
32	1.00	1.00	1.00	1.00	1.00	1.00	1.00
33	1.00	1.00	1.00	1.00	1.00	1.00	1.00
34	1.00	1.00	1.00	1.00	1.00	1.00	1.00
35	1.00	1.00	1.00	1.00	1.00	1.00	1.00
36	1.00	1.00	1.00	1.00	1.00	1.00	1.00
37	1.00	1.00	1.00	1.00	1.00	1.00	1.00
38	1.00	1.00	1.00	1.00	1.00	1.00	1.00
39	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00
41	1.00	1.00	1.00	1.00	1.00	1.00	1.00
42	1.00	1.00	1.00	1.00	1.00	1.00	1.00
43	1.00	1.00	1.00	1.00	1.00	1.00	1.00
44	1.00	1.00	1.00	1.00	1.00	1.00	1.00
45	1.00	1.00	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00	1.00	1.00
47	1.00	1.00	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00	1.00	1.00

NUMBER OF RECORDS READ 456933

NAVY

AVERAGE RANK IN THE 8TH MONTH

EDUCATION LEVEL- I-III
MENTAL GROUP- I-III
RACE- NON BLACK

HIGH SCHOOL GRADUATES

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD	OTHER	NONE	TOTAL
1	NO 10	NO 3	NO 2	NO 4	NO 8	NO 209	NO 7056
2	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
3	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
4	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
5	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
6	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
7	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
8	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
9	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
10	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
11	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
12	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
13	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
14	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
15	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
16	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
17	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
18	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
19	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
20	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
21	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
22	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
23	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
24	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
25	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
26	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
27	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
28	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
29	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
30	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
31	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
32	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
33	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
34	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
35	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
36	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
37	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
38	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
39	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
40	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
41	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
42	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
43	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
44	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
45	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
46	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81
47	NO 20	NO 10	NO 2	NO 87	NO 14	NO 259	NO 7059
48	AVG 3.00	AVG 3.00	AVG 4.00	AVG 3.50	AVG 3.00	AVG 1.81	AVG 1.81

NAVY

AVERAGE RANK IN THE NTH MONTH									
MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION	SUPPLY	OTHER	NONE	TOTAL	NO
1	10	3	2	4	1	3	1	1	1
2	12	3	2	4	1	3	1	1	1
3	20	10	94	372	3	12	1	2	2
4	163	197	137	301	1	2	1	2	2
5	780	491	194	372	1	2	1	2	2
6	1033	647	422	372	1	2	1	2	2
7	1489	754	497	372	1	2	1	2	2
8	1033	1021	384	372	1	2	1	2	2
9	1489	1055	422	372	1	2	1	2	2
10	1489	1055	422	372	1	2	1	2	2
11	1489	1055	422	372	1	2	1	2	2
12	1489	1055	422	372	1	2	1	2	2
13	1489	1055	422	372	1	2	1	2	2
14	1489	1055	422	372	1	2	1	2	2
15	1489	1055	422	372	1	2	1	2	2
16	1489	1055	422	372	1	2	1	2	2
17	1489	1055	422	372	1	2	1	2	2
18	1489	1055	422	372	1	2	1	2	2
19	1489	1055	422	372	1	2	1	2	2
20	1489	1055	422	372	1	2	1	2	2
21	1489	1055	422	372	1	2	1	2	2
22	1489	1055	422	372	1	2	1	2	2
23	1489	1055	422	372	1	2	1	2	2
24	1489	1055	422	372	1	2	1	2	2
25	1489	1055	422	372	1	2	1	2	2
26	1489	1055	422	372	1	2	1	2	2
27	1489	1055	422	372	1	2	1	2	2
28	1489	1055	422	372	1	2	1	2	2
29	1489	1055	422	372	1	2	1	2	2
30	1489	1055	422	372	1	2	1	2	2
31	1489	1055	422	372	1	2	1	2	2
32	1489	1055	422	372	1	2	1	2	2
33	1489	1055	422	372	1	2	1	2	2
34	1489	1055	422	372	1	2	1	2	2
35	1489	1055	422	372	1	2	1	2	2
36	1489	1055	422	372	1	2	1	2	2
37	1489	1055	422	372	1	2	1	2	2
38	1489	1055	422	372	1	2	1	2	2
39	1489	1055	422	372	1	2	1	2	2
40	1489	1055	422	372	1	2	1	2	2
41	1489	1055	422	372	1	2	1	2	2
42	1489	1055	422	372	1	2	1	2	2
43	1489	1055	422	372	1	2	1	2	2
44	1489	1055	422	372	1	2	1	2	2
45	1489	1055	422	372	1	2	1	2	2
46	1489	1055	422	372	1	2	1	2	2
47	1489	1055	422	372	1	2	1	2	2
48	1489	1055	422	372	1	2	1	2	2
49	1489	1055	422	372	1	2	1	2	2
50	1489	1055	422	372	1	2	1	2	2
51	1489	1055	422	372	1	2	1	2	2
52	1489	1055	422	372	1	2	1	2	2
53	1489	1055	422	372	1	2	1	2	2
54	1489	1055	422	372	1	2	1	2	2
55	1489	1055	422	372	1	2	1	2	2
56	1489	1055	422	372	1	2	1	2	2
57	1489	1055	422	372	1	2	1	2	2
58	1489	1055	422	372	1	2	1	2	2
59	1489	1055	422	372	1	2	1	2	2
60	1489	1055	422	372	1	2	1	2	2
61	1489	1055	422	372	1	2	1	2	2
62	1489	1055	422	372	1	2	1	2	2
63	1489	1055	422	372	1	2	1	2	2
64	1489	1055	422	372	1	2	1	2	2
65	1489	1055	422	372	1	2	1	2	2
66	1489	1055	422	372	1	2	1	2	2
67	1489	1055	422	372	1	2	1	2	2
68	1489	1055	422	372	1	2	1	2	2
69	1489	1055	422	372	1	2	1	2	2
70	1489	1055	422	372	1	2	1	2	2
71	1489	1055	422	372	1	2	1	2	2
72	1489	1055	422	372	1	2	1	2	2
73	1489	1055	422	372	1	2	1	2	2
74	1489	1055	422	372	1	2	1	2	2
75	1489	1055	422	372	1	2	1	2	2
76	1489	1055	422	372	1	2	1	2	2
77	1489	1055	422	372	1	2	1	2	2
78	1489	1055	422	372	1	2	1	2	2
79	1489	1055	422	372	1	2	1	2	2
80	1489	1055	422	372	1	2	1	2	2
81	1489	1055	422	372	1	2	1	2	2
82	1489	1055	422	372	1	2	1	2	2
83	1489	1055	422	372	1	2	1	2	2
84	1489	1055	422	372	1	2	1	2	2
85	1489	1055	422	372	1	2	1	2	2
86	1489	1055	422	372	1	2	1	2	2
87	1489	1055	422	372	1	2	1	2	2
88	1489	1055	422	372	1	2	1	2	2
89	1489	1055	422	372	1	2	1	2	2
90	1489	1055	422	372	1	2	1	2	2
91	1489	1055	422	372	1	2	1	2	2
92	1489	1055	422	372	1	2	1	2	2
93	1489	1055	422	372	1	2	1	2	2
94	1489	1055	422	372	1	2	1	2	2
95	1489	1055	422	372	1	2	1	2	2
96	1489	1055	422	372	1	2	1	2	2
97	1489	1055	422	372	1	2	1	2	2
98	1489	1055	422	372	1	2	1	2	2
99	1489	1055	422	372	1	2	1	2	2
100	1489	1055	422	372	1	2	1	2	2

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- I-III
MENTAL GROUP-
RACE- BLACK

[illegible]

EDUCATION LEVEL- I I I B
MENTAL GROUP- I I I B
RACE- NON BLACK

B-1-32

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HIGH SCHOOL GRADUATES

EDUCATION LEVEL- III B
MENTAL GROUP- BLACK
RACE- BLACK

B-1-33

*****UNADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL - IV
MENTAL GROUP -
RACE - NON BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	22	4	7	0	0	4	22
2	25	0	1	0	0	4	25
3	75	3	1	0	0	12	75
4	00	3	2	0	0	12	00
5	14	5	2	0	0	12	14
6	33	12	1	0	0	12	33
7	19	12	1	0	0	12	19
8	67	12	1	0	0	12	67
9	10	12	1	0	0	12	10
10	22	12	1	0	0	12	22
11	25	12	1	0	0	12	25
12	75	12	1	0	0	12	75
13	00	12	1	0	0	12	00
14	14	12	1	0	0	12	14
15	33	12	1	0	0	12	33
16	19	12	1	0	0	12	19
17	67	12	1	0	0	12	67
18	10	12	1	0	0	12	10
19	22	12	1	0	0	12	22
20	25	12	1	0	0	12	25
21	75	12	1	0	0	12	75
22	00	12	1	0	0	12	00
23	14	12	1	0	0	12	14
24	33	12	1	0	0	12	33
25	19	12	1	0	0	12	19
26	67	12	1	0	0	12	67
27	10	12	1	0	0	12	10
28	22	12	1	0	0	12	22
29	25	12	1	0	0	12	25
30	75	12	1	0	0	12	75
31	00	12	1	0	0	12	00
32	14	12	1	0	0	12	14
33	33	12	1	0	0	12	33
34	19	12	1	0	0	12	19
35	67	12	1	0	0	12	67
36	10	12	1	0	0	12	10
37	22	12	1	0	0	12	22
38	25	12	1	0	0	12	25
39	75	12	1	0	0	12	75
40	00	12	1	0	0	12	00
41	14	12	1	0	0	12	14
42	33	12	1	0	0	12	33
43	19	12	1	0	0	12	19
44	67	12	1	0	0	12	67
45	10	12	1	0	0	12	10
46	22	12	1	0	0	12	22
47	25	12	1	0	0	12	25
48	75	12	1	0	0	12	75
49	00	12	1	0	0	12	00
50	14	12	1	0	0	12	14
51	33	12	1	0	0	12	33
52	19	12	1	0	0	12	19
53	67	12	1	0	0	12	67
54	10	12	1	0	0	12	10
55	22	12	1	0	0	12	22
56	25	12	1	0	0	12	25
57	75	12	1	0	0	12	75
58	00	12	1	0	0	12	00
59	14	12	1	0	0	12	14
60	33	12	1	0	0	12	33
61	19	12	1	0	0	12	19
62	67	12	1	0	0	12	67
63	10	12	1	0	0	12	10
64	22	12	1	0	0	12	22
65	25	12	1	0	0	12	25
66	75	12	1	0	0	12	75
67	00	12	1	0	0	12	00
68	14	12	1	0	0	12	14
69	33	12	1	0	0	12	33
70	19	12	1	0	0	12	19
71	67	12	1	0	0	12	67
72	10	12	1	0	0	12	10
73	22	12	1	0	0	12	22
74	25	12	1	0	0	12	25
75	75	12	1	0	0	12	75
76	00	12	1	0	0	12	00
77	14	12	1	0	0	12	14
78	33	12	1	0	0	12	33
79	19	12	1	0	0	12	19
80	67	12	1	0	0	12	67
81	10	12	1	0	0	12	10
82	22	12	1	0	0	12	22
83	25	12	1	0	0	12	25
84	75	12	1	0	0	12	75
85	00	12	1	0	0	12	00
86	14	12	1	0	0	12	14
87	33	12	1	0	0	12	33
88	19	12	1	0	0	12	19
89	67	12	1	0	0	12	67
90	10	12	1	0	0	12	10
91	22	12	1	0	0	12	22
92	25	12	1	0	0	12	25
93	75	12	1	0	0	12	75
94	00	12	1	0	0	12	00
95	14	12	1	0	0	12	14
96	33	12	1	0	0	12	33
97	19	12	1	0	0	12	19
98	67	12	1	0	0	12	67
99	10	12	1	0	0	12	10
100	22	12	1	0	0	12	22

*****UNADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL-
MENTAL GROUP- IV
RACE- BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
	NO AVG	NO AVG	NO AVG	NO AVG	NO AVG	NO AVG	NO AVG
1	0	4	0	0	0	1	1
2	0	0	0	0	0	1	1
3	1	0	0	0	0	1	1
4	2	0	0	0	0	1	2
5	3	0	0	0	0	1	3
6	4	0	0	0	0	1	4
7	5	0	0	0	0	1	5
8	5	0	0	0	0	1	5
9	5	0	0	0	0	1	5
10	5	0	0	0	0	1	5
11	5	0	0	0	0	1	5
12	5	0	0	0	0	1	5
13	5	0	0	0	0	1	5
14	5	0	0	0	0	1	5
15	5	0	0	0	0	1	5
16	5	0	0	0	0	1	5
17	5	0	0	0	0	1	5
18	5	0	0	0	0	1	5
19	5	0	0	0	0	1	5
20	5	0	0	0	0	1	5
21	5	0	0	0	0	1	5
22	5	0	0	0	0	1	5
23	5	0	0	0	0	1	5
24	5	0	0	0	0	1	5
25	5	0	0	0	0	1	5
26	5	0	0	0	0	1	5
27	5	0	0	0	0	1	5
28	5	0	0	0	0	1	5
29	5	0	0	0	0	1	5
30	5	0	0	0	0	1	5
31	5	0	0	0	0	1	5
32	5	0	0	0	0	1	5
33	5	0	0	0	0	1	5
34	5	0	0	0	0	1	5
35	5	0	0	0	0	1	5
36	5	0	0	0	0	1	5
37	5	0	0	0	0	1	5
38	5	0	0	0	0	1	5
39	5	0	0	0	0	1	5
40	5	0	0	0	0	1	5
41	5	0	0	0	0	1	5
42	5	0	0	0	0	1	5
43	5	0	0	0	0	1	5
44	5	0	0	0	0	1	5
45	5	0	0	0	0	1	5
46	5	0	0	0	0	1	5
47	5	0	0	0	0	1	5
48	5	0	0	0	0	1	5
49	5	0	0	0	0	1	5
50	5	0	0	0	0	1	5
51	5	0	0	0	0	1	5
52	5	0	0	0	0	1	5
53	5	0	0	0	0	1	5
54	5	0	0	0	0	1	5
55	5	0	0	0	0	1	5
56	5	0	0	0	0	1	5
57	5	0	0	0	0	1	5
58	5	0	0	0	0	1	5
59	5	0	0	0	0	1	5
60	5	0	0	0	0	1	5
61	5	0	0	0	0	1	5
62	5	0	0	0	0	1	5
63	5	0	0	0	0	1	5
64	5	0	0	0	0	1	5
65	5	0	0	0	0	1	5
66	5	0	0	0	0	1	5
67	5	0	0	0	0	1	5
68	5	0	0	0	0	1	5
69	5	0	0	0	0	1	5
70	5	0	0	0	0	1	5
71	5	0	0	0	0	1	5
72	5	0	0	0	0	1	5
73	5	0	0	0	0	1	5
74	5	0	0	0	0	1	5
75	5	0	0	0	0	1	5
76	5	0	0	0	0	1	5
77	5	0	0	0	0	1	5
78	5	0	0	0	0	1	5
79	5	0	0	0	0	1	5
80	5	0	0	0	0	1	5
81	5	0	0	0	0	1	5
82	5	0	0	0	0	1	5
83	5	0	0	0	0	1	5
84	5	0	0	0	0	1	5
85	5	0	0	0	0	1	5
86	5	0	0	0	0	1	5
87	5	0	0	0	0	1	5
88	5	0	0	0	0	1	5
89	5	0	0	0	0	1	5
90	5	0	0	0	0	1	5
91	5	0	0	0	0	1	5
92	5	0	0	0	0	1	5
93	5	0	0	0	0	1	5
94	5	0	0	0	0	1	5
95	5	0	0	0	0	1	5
96	5	0	0	0	0	1	5
97	5	0	0	0	0	1	5
98	5	0	0	0	0	1	5
99	5	0	0	0	0	1	5
100	5	0	0	0	0	1	5

*****UNADJUSTED*****

NAVY

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL-
MENTAL GROUP- I-III
RACE- BLACK

MONTH	TECHNICAL	ENG/HULL/DECK	AVIATION	OCCUPATION FIELD SUPPLY	OTHER	NONE	TOTAL
1	0	0	0	0	0	150	150
2	0	0	0	0	0	57	57
3	0	0	0	0	0	46	46
4	0	0	0	0	0	33	33
5	0	0	0	0	0	33	33
6	0	0	0	0	0	26	26
7	0	0	0	0	0	18	18
8	0	0	0	0	0	13	13
9	0	0	0	0	0	13	13
10	0	0	0	0	0	13	13
11	0	0	0	0	0	13	13
12	0	0	0	0	0	13	13
13	0	0	0	0	0	13	13
14	0	0	0	0	0	13	13
15	0	0	0	0	0	13	13
16	0	0	0	0	0	13	13
17	0	0	0	0	0	13	13
18	0	0	0	0	0	13	13
19	0	0	0	0	0	13	13
20	0	0	0	0	0	13	13
21	0	0	0	0	0	13	13
22	0	0	0	0	0	13	13
23	0	0	0	0	0	13	13
24	0	0	0	0	0	13	13
25	0	0	0	0	0	13	13
26	0	0	0	0	0	13	13
27	0	0	0	0	0	13	13
28	0	0	0	0	0	13	13
29	0	0	0	0	0	13	13
30	0	0	0	0	0	13	13
31	0	0	0	0	0	13	13
32	0	0	0	0	0	13	13
33	0	0	0	0	0	13	13
34	0	0	0	0	0	13	13
35	0	0	0	0	0	13	13
36	0	0	0	0	0	13	13
37	0	0	0	0	0	13	13
38	0	0	0	0	0	13	13
39	0	0	0	0	0	13	13
40	0	0	0	0	0	13	13
41	0	0	0	0	0	13	13
42	0	0	0	0	0	13	13
43	0	0	0	0	0	13	13
44	0	0	0	0	0	13	13
45	0	0	0	0	0	13	13
46	0	0	0	0	0	13	13
47	0	0	0	0	0	13	13
48	0	0	0	0	0	13	13
49	0	0	0	0	0	13	13
50	0	0	0	0	0	13	13
51	0	0	0	0	0	13	13
52	0	0	0	0	0	13	13
53	0	0	0	0	0	13	13
54	0	0	0	0	0	13	13
55	0	0	0	0	0	13	13
56	0	0	0	0	0	13	13
57	0	0	0	0	0	13	13
58	0	0	0	0	0	13	13
59	0	0	0	0	0	13	13
60	0	0	0	0	0	13	13
61	0	0	0	0	0	13	13
62	0	0	0	0	0	13	13
63	0	0	0	0	0	13	13
64	0	0	0	0	0	13	13
65	0	0	0	0	0	13	13
66	0	0	0	0	0	13	13
67	0	0	0	0	0	13	13
68	0	0	0	0	0	13	13
69	0	0	0	0	0	13	13
70	0	0	0	0	0	13	13
71	0	0	0	0	0	13	13
72	0	0	0	0	0	13	13
73	0	0	0	0	0	13	13
74	0	0	0	0	0	13	13
75	0	0	0	0	0	13	13
76	0	0	0	0	0	13	13
77	0	0	0	0	0	13	13
78	0	0	0	0	0	13	13
79	0	0	0	0	0	13	13
80	0	0	0	0	0	13	13
81	0	0	0	0	0	13	13
82	0	0	0	0	0	13	13
83	0	0	0	0	0	13	13
84	0	0	0	0	0	13	13
85	0	0	0	0	0	13	13
86	0	0	0	0	0	13	13
87	0	0	0	0	0	13	13
88	0	0	0	0	0	13	13
89	0	0	0	0	0	13	13
90	0	0	0	0	0	13	13
91	0	0	0	0	0	13	13
92	0	0	0	0	0	13	13
93	0	0	0	0	0	13	13
94	0	0	0	0	0	13	13
95	0	0	0	0	0	13	13
96	0	0	0	0	0	13	13
97	0	0	0	0	0	13	13
98	0	0	0	0	0	13	13
99	0	0	0	0	0	13	13
100	0	0	0	0	0	13	13

Appendix B2

AVERAGE GRADE BY MONTH OF SERVICE
FOR MARINE CORPS FIRST-TERM ENLISTEES

END FY 1976 MARINE CORPS

*****UNADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- I-III
MENTAL GROUP-
RACE- NON BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
	NO	NO	NO	NO	NO	NO
1	3	0	1	1	1	1
2	0	0	1	1	1	1
3	0	0	1	1	1	1
4	0	0	1	1	1	1
5	0	0	1	1	1	1
6	0	0	1	1	1	1
7	0	0	1	1	1	1
8	0	0	1	1	1	1
9	0	0	1	1	1	1
10	0	0	1	1	1	1
11	0	0	1	1	1	1
12	0	0	1	1	1	1
13	0	0	1	1	1	1
14	0	0	1	1	1	1
15	0	0	1	1	1	1
16	0	0	1	1	1	1
17	0	0	1	1	1	1
18	0	0	1	1	1	1
19	0	0	1	1	1	1
20	0	0	1	1	1	1
21	0	0	1	1	1	1
22	0	0	1	1	1	1
23	0	0	1	1	1	1
24	0	0	1	1	1	1
25	0	0	1	1	1	1
26	0	0	1	1	1	1
27	0	0	1	1	1	1
28	0	0	1	1	1	1
29	0	0	1	1	1	1
30	0	0	1	1	1	1
31	0	0	1	1	1	1
32	0	0	1	1	1	1
33	0	0	1	1	1	1
34	0	0	1	1	1	1
35	0	0	1	1	1	1
36	0	0	1	1	1	1
37	0	0	1	1	1	1
38	0	0	1	1	1	1
39	0	0	1	1	1	1
40	0	0	1	1	1	1
41	0	0	1	1	1	1
42	0	0	1	1	1	1
43	0	0	1	1	1	1
44	0	0	1	1	1	1
45	0	0	1	1	1	1
46	0	0	1	1	1	1
47	0	0	1	1	1	1
48	0	0	1	1	1	1
49	0	0	1	1	1	1
50	0	0	1	1	1	1
51	0	0	1	1	1	1
52	0	0	1	1	1	1
53	0	0	1	1	1	1
54	0	0	1	1	1	1
55	0	0	1	1	1	1
56	0	0	1	1	1	1
57	0	0	1	1	1	1
58	0	0	1	1	1	1
59	0	0	1	1	1	1
60	0	0	1	1	1	1
61	0	0	1	1	1	1
62	0	0	1	1	1	1
63	0	0	1	1	1	1
64	0	0	1	1	1	1
65	0	0	1	1	1	1
66	0	0	1	1	1	1
67	0	0	1	1	1	1
68	0	0	1	1	1	1
69	0	0	1	1	1	1
70	0	0	1	1	1	1
71	0	0	1	1	1	1
72	0	0	1	1	1	1
73	0	0	1	1	1	1
74	0	0	1	1	1	1
75	0	0	1	1	1	1
76	0	0	1	1	1	1
77	0	0	1	1	1	1
78	0	0	1	1	1	1
79	0	0	1	1	1	1
80	0	0	1	1	1	1
81	0	0	1	1	1	1
82	0	0	1	1	1	1
83	0	0	1	1	1	1
84	0	0	1	1	1	1
85	0	0	1	1	1	1
86	0	0	1	1	1	1
87	0	0	1	1	1	1
88	0	0	1	1	1	1
89	0	0	1	1	1	1
90	0	0	1	1	1	1
91	0	0	1	1	1	1
92	0	0	1	1	1	1
93	0	0	1	1	1	1
94	0	0	1	1	1	1
95	0	0	1	1	1	1
96	0	0	1	1	1	1
97	0	0	1	1	1	1
98	0	0	1	1	1	1
99	0	0	1	1	1	1
100	0	0	1	1	1	1

END FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IV
MENTAL GROUP- NON BLACK
RACE-

[illegible]

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IV
MENTAL GROUP- BLACK
RACE-

TOTAL

NONE

OCCUPATION FIELD
 OTHER

var

GRD

COMBAT

AVIATION

MONTH

AVIATION

COMBAT

GROUND SUPPORT

OTHER

NONE

TOTAL

AVERAGE RANK IN THE NTH MONTH

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0</				

*****UNADJUSTED***** END FY 1976 MARINE CORPS AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IIR
MENTAL GROUP-
RACE- BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION OTHER FIELD	NONE	TOTAL
1	NO	NO	NO	NO	NO	NO
2	AVG	AVG	AVG	AVG	AVG	AVG
3	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00
59	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00
61	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.00	0.00	0.00	0.00
63	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	0.00	0.00	0.00	0.00
67	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00
69	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00	0.00	0.00
71	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00
83	0.00	0.00	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00
87	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00
91	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00

*****UNADJUSTED*****

END FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV
MENTAL GROUP- NON BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	0	2	2	3	1	13
2	0	2	2	3	1	13
3	0	2	2	3	1	13
4	0	2	2	3	1	13
5	0	2	2	3	1	13
6	0	2	2	3	1	13
7	0	2	2	3	1	13
8	0	2	2	3	1	13
9	0	2	2	3	1	13
10	0	2	2	3	1	13
11	0	2	2	3	1	13
12	0	2	2	3	1	13
13	0	2	2	3	1	13
14	0	2	2	3	1	13
15	0	2	2	3	1	13
16	0	2	2	3	1	13
17	0	2	2	3	1	13
18	0	2	2	3	1	13
19	0	2	2	3	1	13
20	0	2	2	3	1	13
21	0	2	2	3	1	13
22	0	2	2	3	1	13
23	0	2	2	3	1	13
24	0	2	2	3	1	13
25	0	2	2	3	1	13
26	0	2	2	3	1	13
27	0	2	2	3	1	13
28	0	2	2	3	1	13
29	0	2	2	3	1	13
30	0	2	2	3	1	13
31	0	2	2	3	1	13
32	0	2	2	3	1	13
33	0	2	2	3	1	13
34	0	2	2	3	1	13
35	0	2	2	3	1	13
36	0	2	2	3	1	13
37	0	2	2	3	1	13
38	0	2	2	3	1	13
39	0	2	2	3	1	13
40	0	2	2	3	1	13
41	0	2	2	3	1	13
42	0	2	2	3	1	13
43	0	2	2	3	1	13
44	0	2	2	3	1	13
45	0	2	2	3	1	13
46	0	2	2	3	1	13
47	0	2	2	3	1	13
48	0	2	2	3	1	13
49	0	2	2	3	1	13
50	0	2	2	3	1	13
51	0	2	2	3	1	13
52	0	2	2	3	1	13
53	0	2	2	3	1	13
54	0	2	2	3	1	13
55	0	2	2	3	1	13
56	0	2	2	3	1	13
57	0	2	2	3	1	13
58	0	2	2	3	1	13
59	0	2	2	3	1	13
60	0	2	2	3	1	13
61	0	2	2	3	1	13
62	0	2	2	3	1	13
63	0	2	2	3	1	13
64	0	2	2	3	1	13
65	0	2	2	3	1	13
66	0	2	2	3	1	13
67	0	2	2	3	1	13
68	0	2	2	3	1	13
69	0	2	2	3	1	13
70	0	2	2	3	1	13
71	0	2	2	3	1	13
72	0	2	2	3	1	13
73	0	2	2	3	1	13
74	0	2	2	3	1	13
75	0	2	2	3	1	13
76	0	2	2	3	1	13
77	0	2	2	3	1	13
78	0	2	2	3	1	13
79	0	2	2	3	1	13
80	0	2	2	3	1	13
81	0	2	2	3	1	13
82	0	2	2	3	1	13
83	0	2	2	3	1	13
84	0	2	2	3	1	13
85	0	2	2	3	1	13
86	0	2	2	3	1	13
87	0	2	2	3	1	13
88	0	2	2	3	1	13
89	0	2	2	3	1	13
90	0	2	2	3	1	13
91	0	2	2	3	1	13
92	0	2	2	3	1	13
93	0	2	2	3	1	13
94	0	2	2	3	1	13
95	0	2	2	3	1	13
96	0	2	2	3	1	13
97	0	2	2	3	1	13
98	0	2	2	3	1	13
99	0	2	2	3	1	13
100	0	2	2	3	1	13

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV
MENTAL GROUP-
RACE- BLACK

[illegible]

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL - MENTAL GROUP -	HIGH SCHOOL GRADUATES I-III A
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION OTHER FIELD	NONE	TOTAL
1	0	0	1	1	1	4
2	0	0	1	1	1	4
3	0	0	1	1	1	4
4	0	0	1	1	1	4
5	0	0	1	1	1	4
6	0	0	1	1	1	4
7	0	0	1	1	1	4
8	0	0	1	1	1	4
9	0	0	1	1	1	4
10	0	0	1	1	1	4
11	0	0	1	1	1	4
12	0	0	1	1	1	4
13	0	0	1	1	1	4
14	0	0	1	1	1	4
15	0	0	1	1	1	4
16	0	0	1	1	1	4
17	0	0	1	1	1	4
18	0	0	1	1	1	4
19	0	0	1	1	1	4
20	0	0	1	1	1	4
21	0	0	1	1	1	4
22	0	0	1	1	1	4
23	0	0	1	1	1	4
24	0	0	1	1	1	4
25	0	0	1	1	1	4
26	0	0	1	1	1	4
27	0	0	1	1	1	4
28	0	0	1	1	1	4
29	0	0	1	1	1	4
30	0	0	1	1	1	4
31	0	0	1	1	1	4
32	0	0	1	1	1	4
33	0	0	1	1	1	4
34	0	0	1	1	1	4
35	0	0	1	1	1	4
36	0	0	1	1	1	4
37	0	0	1	1	1	4
38	0	0	1	1	1	4
39	0	0	1	1	1	4
40	0	0	1	1	1	4
41	0	0	1	1	1	4
42	0	0	1	1	1	4
43	0	0	1	1	1	4
44	0	0	1	1	1	4
45	0	0	1	1	1	4
46	0	0	1	1	1	4
47	0	0	1	1	1	4
48	0	0	1	1	1	4
49	0	0	1	1	1	4
50	0	0	1	1	1	4
51	0	0	1	1	1	4
52	0	0	1	1	1	4
53	0	0	1	1	1	4
54	0	0	1	1	1	4
55	0	0	1	1	1	4
56	0	0	1	1	1	4
57	0	0	1	1	1	4
58	0	0	1	1	1	4
59	0	0	1	1	1	4
60	0	0	1	1	1	4
61	0	0	1	1	1	4
62	0	0	1	1	1	4
63	0	0	1	1	1	4
64	0	0	1	1	1	4
65	0	0	1	1	1	4
66	0	0	1	1	1	4
67	0	0	1	1	1	4
68	0	0	1	1	1	4
69	0	0	1	1	1	4
70	0	0	1	1	1	4
71	0	0	1	1	1	4
72	0	0	1	1	1	4
73	0	0	1	1	1	4
74	0	0	1	1	1	4
75	0	0	1	1	1	4
76	0	0	1	1	1	4
77	0	0	1	1	1	4
78	0	0	1	1	1	4
79	0	0	1	1	1	4
80	0	0	1	1	1	4
81	0	0	1	1	1	4
82	0	0	1	1	1	4
83	0</					

*****UNADJUSTED*****

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL - IIIB
MENTAL GROUP -
RACE - TOTAL

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD		NONE	TOTAL
				OTHER	FIELD		
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0

*****UNADJUSTED*****

HIGH SCHOOL GRADUATES

[illegible]

B-2-15

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL - NON-HIGH SCHOOL GRADUATES
MENTAL GROUP - I-III A
RACE - TOTAL

[illegible]

*****UNADJUSTED*****

EDUCATION LEVEL- MENTAL GROUP- RACE-	NON-HIGH SCHOOL GRADUATES IIIB TOTAL
WHITE	100
BLACK	100
OTHER	100
TOTAL	100

B-2-17

*****UNADJUSTED*****

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV NON-HIGH SCHOOL GRADUATES

RACE- TOTAL

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
NO	NO	NO	NO	NO	NO	NO
1	0	9	2	1	1	1
2	0	6	6	4	1	18
3	0	4	7	2	1	14
4	0	6	8	1	1	16
5	0	4	5	1	1	11
6	0	4	5	1	1	11
7	0	4	5	1	1	11
8	0	4	5	1	1	11
9	0	4	5	1	1	11
10	0	4	5	1	1	11
11	0	4	5	1	1	11
12	0	4	5	1	1	11
13	0	4	5	1	1	11
14	0	4	5	1	1	11
15	0	4	5	1	1	11
16	0	4	5	1	1	11
17	0	4	5	1	1	11
18	0	4	5	1	1	11
19	0	4	5	1	1	11
20	0	4	5	1	1	11
21	0	4	5	1	1	11
22	0	4	5	1	1	11
23	0	4	5	1	1	11
24	0	4	5	1	1	11
25	0	4	5	1	1	11
26	0	4	5	1	1	11
27	0	4	5	1	1	11
28	0	4	5	1	1	11
29	0	4	5	1	1	11
30	0	4	5	1	1	11
31	0	4	5	1	1	11
32	0	4	5	1	1	11
33	0	4	5	1	1	11
34	0	4	5	1	1	11
35	0	4	5	1	1	11
36	0	4	5	1	1	11
37	0	4	5	1	1	11
38	0	4	5	1	1	11
39	0	4	5	1	1	11
40	0	4	5	1	1	11
41	0	4	5	1	1	11
42	0	4	5	1	1	11
43	0	4	5	1	1	11
44	0	4	5	1	1	11
45	0	4	5	1	1	11
46	0	4	5	1	1	11
47	0	4	5	1	1	11
48	0	4	5	1	1	11
49	0	4	5	1	1	11
50	0	4	5	1	1	11
51	0	4	5	1	1	11
52	0	4	5	1	1	11
53	0	4	5	1	1	11
54	0	4	5	1	1	11
55	0	4	5	1	1	11
56	0	4	5	1	1	11
57	0	4	5	1	1	11
58	0	4	5	1	1	11
59	0	4	5	1	1	11
60	0	4	5	1	1	11
61	0	4	5	1	1	11
62	0	4	5	1	1	11
63	0	4	5	1	1	11
64	0	4	5	1	1	11
65	0	4	5	1	1	11
66	0	4	5	1	1	11
67	0	4	5	1	1	11
68	0	4	5	1	1	11
69	0	4	5	1	1	11
70	0	4	5	1	1	11
71	0	4	5	1	1	11
72	0	4	5	1	1	11
73	0	4	5	1	1	11
74	0	4	5	1	1	11
75	0	4	5	1	1	11
76	0	4	5	1	1	11
77	0	4	5	1	1	11
78	0	4	5	1	1	11
79	0	4	5	1	1	11
80	0	4	5	1	1	11
81	0	4	5	1	1	11
82	0	4	5	1	1	11
83	0	4	5	1	1	11
84	0	4	5	1	1	11
85	0	4	5	1	1	11
86	0	4	5	1	1	11
87	0	4	5	1	1	11
88	0	4	5	1	1	11
89	0	4	5	1	1	11
90	0	4	5	1	1	11
91	0	4	5	1	1	11
92	0	4	5	1	1	11
93	0	4	5	1	1	11
94	0	4	5	1	1	11
95	0	4	5	1	1	11
96	0	4	5	1	1	11
97	0	4	5	1	1	11
98	0	4	5	1	1	11
99	0	4	5	1	1	11
100	0	4	5	1	1	11

*****ADJUSTED*****

END FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- I-III
MENTAL GROUP-
RACE- BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1
28	1	1	1	1	1	1
29	1	1	1	1	1	1
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	1	1	1
37	1	1	1	1	1	1
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1
41	1	1	1	1	1	1
42	1	1	1	1	1	1
43	1	1	1	1	1	1
44	1	1	1	1	1	1
45	1	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1
51	1	1	1	1	1	1
52	1	1	1	1	1	1
53	1	1	1	1	1	1
54	1	1	1	1	1	1
55	1	1	1	1	1	1
56	1	1	1	1	1	1
57	1	1	1	1	1	1
58	1	1	1	1	1	1
59	1	1	1	1	1	1
60	1	1	1	1	1	1
61	1	1	1	1	1	1
62	1	1	1	1	1	1
63	1	1	1	1	1	1
64	1	1	1	1	1	1
65	1	1	1	1	1	1
66	1	1	1	1	1	1
67	1	1	1	1	1	1
68	1	1	1	1	1	1
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
72	1	1	1	1	1	1
73	1	1	1	1	1	1
74	1	1	1	1	1	1
75	1	1	1	1	1	1
76	1	1	1	1	1	1
77	1	1	1	1	1	1
78	1	1	1	1	1	1
79	1	1	1	1	1	1
80	1	1	1	1	1	1
81	1	1	1	1	1	1
82	1	1	1	1	1	1
83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1
86	1	1	1	1	1	1
87	1	1	1	1	1	1
88	1	1	1	1	1	1
89	1	1	1	1	1	1
90	1	1	1	1	1	1
91	1	1	1	1	1	1
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1

END FY 1976 MARINE CORPS

*****ADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IIIB
MENTAL GROUP-
RACE- NON BLACK

MONTH	AVIATION	CONBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	NO 55	NO 237	NO 297	NO 276	NO 1	NO 876
2	AVG 1.1	AVG 1.1	AVG 1.1	AVG 1.1	AVG 1.1	AVG 1.1
3	1.1	1.1	1.1	1.1	1.1	1.1
4	1.1	1.1	1.1	1.1	1.1	1.1
5	1.1	1.1	1.1	1.1	1.1	1.1
6	1.1	1.1	1.1	1.1	1.1	1.1
7	1.1	1.1	1.1	1.1	1.1	1.1
8	1.1	1.1	1.1	1.1	1.1	1.1
9	1.1	1.1	1.1	1.1	1.1	1.1
10	1.1	1.1	1.1	1.1	1.1	1.1
11	1.1	1.1	1.1	1.1	1.1	1.1
12	1.1	1.1	1.1	1.1	1.1	1.1
13	1.1	1.1	1.1	1.1	1.1	1.1
14	1.1	1.1	1.1	1.1	1.1	1.1
15	1.1	1.1	1.1	1.1	1.1	1.1
16	1.1	1.1	1.1	1.1	1.1	1.1
17	1.1	1.1	1.1	1.1	1.1	1.1
18	1.1	1.1	1.1	1.1	1.1	1.1
19	1.1	1.1	1.1	1.1	1.1	1.1
20	1.1	1.1	1.1	1.1	1.1	1.1
21	1.1	1.1	1.1	1.1	1.1	1.1
22	1.1	1.1	1.1	1.1	1.1	1.1
23	1.1	1.1	1.1	1.1	1.1	1.1
24	1.1	1.1	1.1	1.1	1.1	1.1
25	1.1	1.1	1.1	1.1	1.1	1.1
26	1.1	1.1	1.1	1.1	1.1	1.1
27	1.1	1.1	1.1	1.1	1.1	1.1
28	1.1	1.1	1.1	1.1	1.1	1.1
29	1.1	1.1	1.1	1.1	1.1	1.1
30	1.1	1.1	1.1	1.1	1.1	1.1
31	1.1	1.1	1.1	1.1	1.1	1.1
32	1.1	1.1	1.1	1.1	1.1	1.1
33	1.1	1.1	1.1	1.1	1.1	1.1
34	1.1	1.1	1.1	1.1	1.1	1.1
35	1.1	1.1	1.1	1.1	1.1	1.1
36	1.1	1.1	1.1	1.1	1.1	1.1
37	1.1	1.1	1.1	1.1	1.1	1.1
38	1.1	1.1	1.1	1.1	1.1	1.1
39	1.1	1.1	1.1	1.1	1.1	1.1
40	1.1	1.1	1.1	1.1	1.1	1.1
41	1.1	1.1	1.1	1.1	1.1	1.1
42	1.1	1.1	1.1	1.1	1.1	1.1
43	1.1	1.1	1.1	1.1	1.1	1.1
44	1.1	1.1	1.1	1.1	1.1	1.1
45	1.1	1.1	1.1	1.1	1.1	1.1
46	1.1	1.1	1.1	1.1	1.1	1.1
47	1.1	1.1	1.1	1.1	1.1	1.1
48	1.1	1.1	1.1	1.1	1.1	1.1
49	1.1	1.1	1.1	1.1	1.1	1.1
50	1.1	1.1	1.1	1.1	1.1	1.1
51	1.1	1.1	1.1	1.1	1.1	1.1
52	1.1	1.1	1.1	1.1	1.1	1.1
53	1.1	1.1	1.1	1.1	1.1	1.1
54	1.1	1.1	1.1	1.1	1.1	1.1
55	1.1	1.1	1.1	1.1	1.1	1.1
56	1.1	1.1	1.1	1.1	1.1	1.1
57	1.1	1.1	1.1	1.1	1.1	1.1
58	1.1	1.1	1.1	1.1	1.1	1.1
59	1.1	1.1	1.1	1.1	1.1	1.1
60	1.1	1.1	1.1	1.1	1.1	1.1
61	1.1	1.1	1.1	1.1	1.1	1.1
62	1.1	1.1	1.1	1.1	1.1	1.1
63	1.1	1.1	1.1	1.1	1.1	1.1
64	1.1	1.1	1.1	1.1	1.1	1.1
65	1.1	1.1	1.1	1.1	1.1	1.1
66	1.1	1.1	1.1	1.1	1.1	1.1
67	1.1	1.1	1.1	1.1	1.1	1.1
68	1.1	1.1	1.1	1.1	1.1	1.1
69	1.1	1.1	1.1	1.1	1.1	1.1
70	1.1	1.1	1.1	1.1	1.1	1.1
71	1.1	1.1	1.1	1.1	1.1	1.1
72	1.1	1.1	1.1	1.1	1.1	1.1
73	1.1	1.1	1.1	1.1	1.1	1.1
74	1.1	1.1	1.1	1.1	1.1	1.1
75	1.1	1.1	1.1	1.1	1.1	1.1
76	1.1	1.1	1.1	1.1	1.1	1.1
77	1.1	1.1	1.1	1.1	1.1	1.1
78	1.1	1.1	1.1	1.1	1.1	1.1
79	1.1	1.1	1.1	1.1	1.1	1.1
80	1.1	1.1	1.1	1.1	1.1	1.1
81	1.1	1.1	1.1	1.1	1.1	1.1
82	1.1	1.1	1.1	1.1	1.1	1.1
83	1.1	1.1	1.1	1.1	1.1	1.1
84	1.1	1.1	1.1	1.1	1.1	1.1
85	1.1	1.1	1.1	1.1	1.1	1.1
86	1.1	1.1	1.1	1.1	1.1	1.1
87	1.1	1.1	1.1	1.1	1.1	1.1
88	1.1	1.1	1.1	1.1	1.1	1.1
89	1.1	1.1	1.1	1.1	1.1	1.1
90	1.1	1.1	1.1	1.1	1.1	1.1
91	1.1	1.1	1.1	1.1	1.1	1.1
92	1.1	1.1	1.1	1.1	1.1	1.1
93	1.1	1.1	1.1	1.1	1.1	1.1
94	1.1	1.1	1.1	1.1	1.1	1.1
95	1.1	1.1	1.1	1.1	1.1	1.1
96	1.1	1.1	1.1	1.1	1.1	1.1
97	1.1	1.1	1.1	1.1	1.1	1.1
98	1.1	1.1	1.1	1.1	1.1	1.1
99	1.1	1.1	1.1	1.1	1.1	1.1
100	1.1	1.1	1.1	1.1	1.1	1.1

*****ADJUSTED*****

END FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IIIIR
RACE- BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
NO	1	1	1	1	1	1
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1
28	1	1	1	1	1	1
29	1	1	1	1	1	1
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	1	1	1
37	1	1	1	1	1	1
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1
41	1	1	1	1	1	1
42	1	1	1	1	1	1
43	1	1	1	1	1	1
44	1	1	1	1	1	1
45	1	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1
51	1	1	1	1	1	1
52	1	1	1	1	1	1
53	1	1	1	1	1	1
54	1	1	1	1	1	1
55	1	1	1	1	1	1
56	1	1	1	1	1	1
57	1	1	1	1	1	1
58	1	1	1	1	1	1
59	1	1	1	1	1	1
60	1	1	1	1	1	1
61	1	1	1	1	1	1
62	1	1	1	1	1	1
63	1	1	1	1	1	1
64	1	1	1	1	1	1
65	1	1	1	1	1	1
66	1	1	1	1	1	1
67	1	1	1	1	1	1
68	1	1	1	1	1	1
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
72	1	1	1	1	1	1
73	1	1	1	1	1	1
74	1	1	1	1	1	1
75	1	1	1	1	1	1
76	1	1	1	1	1	1
77	1	1	1	1	1	1
78	1	1	1	1	1	1
79	1	1	1	1	1	1
80	1	1	1	1	1	1
81	1	1	1	1	1	1
82	1	1	1	1	1	1
83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1
86	1	1	1	1	1	1
87	1	1	1	1	1	1
88	1	1	1	1	1	1
89	1	1	1	1	1	1
90	1	1	1	1	1	1
91	1	1	1	1	1	1
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1

*****ADJUSTED*****

END FY 1976 MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL-
MENTAL GROUP- IV
RACE- NON BLACK

MONTH	AVIATION	COMBAT	GROUND	SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
	NO	AVG	NO	AVG	NO	AVG	NO
1	25	3.13	140	3.14	91	3.14	362
2	14	3.21	154	3.23	34	3.15	159
3	9	3.43	253	3.55	15	3.27	135
4	5	3.34	228	3.33	34	3.48	172
5	10	3.78	34	3.62	35	3.55	140
6	14	3.80	19	3.64	35	3.44	150
7	15	3.97	34	3.82	34	3.95	216
8	17	3.18	34	3.12	36	3.04	142
9	10	3.67	33	3.51	32	3.44	300
10	21	3.58	116	3.54	35	3.55	346
11	32	3.58	114	3.53	32	3.50	347
12	32	3.29	146	3.22	30	3.00	347
13	32	3.89	140	3.83	32	3.33	347
14	32	3.77	140	3.69	32	3.00	347
15	32	3.70	140	3.69	32	3.00	347
16	32	3.91	140	3.83	32	3.33	347
17	32	3.89	140	3.83	32	3.33	347
18	32	3.77	140	3.69	32	3.00	347
19	32	3.70	140	3.69	32	3.00	347
20	32	3.91	140	3.83	32	3.33	347
21	32	3.89	140	3.83	32	3.33	347
22	32	3.77	140	3.69	32	3.00	347
23	32	3.70	140	3.69	32	3.00	347
24	32	3.91	140	3.83	32	3.33	347
25	32	3.89	140	3.83	32	3.33	347
26	32	3.77	140	3.69	32	3.00	347
27	32	3.70	140	3.69	32	3.00	347
28	32	3.91	140	3.83	32	3.33	347
29	32	3.89	140	3.83	32	3.33	347
30	32	3.77	140	3.69	32	3.00	347
31	32	3.70	140	3.69	32	3.00	347
32	32	3.91	140	3.83	32	3.33	347
33	32	3.89	140	3.83	32	3.33	347
34	32	3.77	140	3.69	32	3.00	347
35	32	3.70	140	3.69	32	3.00	347
36	32	3.91	140	3.83	32	3.33	347
37	32	3.89	140	3.83	32	3.33	347
38	32	3.77	140	3.69	32	3.00	347
39	32	3.70	140	3.69	32	3.00	347
40	32	3.91	140	3.83	32	3.33	347
41	32	3.89	140	3.83	32	3.33	347
42	32	3.77	140	3.69	32	3.00	347
43	32	3.70	140	3.69	32	3.00	347
44	32	3.91	140	3.83	32	3.33	347
45	32	3.89	140	3.83	32	3.33	347
46	32	3.77	140	3.69	32	3.00	347
47	32	3.70	140	3.69	32	3.00	347
48	32	3.91	140	3.83	32	3.33	347
49	32	3.89	140	3.83	32	3.33	347
50	32	3.77	140	3.69	32	3.00	347
51	32	3.70	140	3.69	32	3.00	347
52	32	3.91	140	3.83	32	3.33	347
53	32	3.89	140	3.83	32	3.33	347
54	32	3.77	140	3.69	32	3.00	347
55	32	3.70	140	3.69	32	3.00	347
56	32	3.91	140	3.83	32	3.33	347
57	32	3.89	140	3.83	32	3.33	347
58	32	3.77	140	3.69	32	3.00	347
59	32	3.70	140	3.69	32	3.00	347
60	32	3.91	140	3.83	32	3.33	347
61	32	3.89	140	3.83	32	3.33	347
62	32	3.77	140	3.69	32	3.00	347
63	32	3.70	140	3.69	32	3.00	347
64	32	3.91	140	3.83	32	3.33	347
65	32	3.89	140	3.83	32	3.33	347
66	32	3.77	140	3.69	32	3.00	347
67	32	3.70	140	3.69	32	3.00	347
68	32	3.91	140	3.83	32	3.33	347
69	32	3.89	140	3.83	32	3.33	347
70	32	3.77	140	3.69	32	3.00	347
71	32	3.70	140	3.69	32	3.00	347
72	32	3.91	140	3.83	32	3.33	347
73	32	3.89	140	3.83	32	3.33	347
74	32	3.77	140	3.69	32	3.00	347
75	32	3.70	140	3.69	32	3.00	347
76	32	3.91	140	3.83	32	3.33	347
77	32	3.89	140	3.83	32	3.33	347
78	32	3.77	140	3.69	32	3.00	347
79	32	3.70	140	3.69	32	3.00	347
80	32	3.91	140	3.83	32	3.33	347
81	32	3.89	140	3.83	32	3.33	347
82	32	3.77	140	3.69	32	3.00	347
83	32	3.70	140	3.69	32	3.00	347
84	32	3.91	140	3.83	32	3.33	347
85	32	3.89	140	3.83	32	3.33	347
86	32	3.77	140	3.69	32	3.00	347
87	32	3.70	140	3.69	32	3.00	347
88	32	3.91	140	3.83	32	3.33	347
89	32	3.89	140	3.83	32	3.33	347
90	32	3.77	140	3.69	32	3.00	347
91	32	3.70	140	3.69	32	3.00	347
92	32	3.91	140	3.83	32	3.33	347
93	32	3.89	140	3.83	32	3.33	347
94	32	3.77	140	3.69	32	3.00	347
95	32	3.70	140	3.69	32	3.00	347
96	32	3.91	140	3.83	32	3.33	347
97	32	3.89	140	3.83	32	3.33	347
98	32	3.77	140	3.69	32	3.00	347
99	32	3.70	140	3.69	32	3.00	347
100	32	3.91	140	3.83	32	3.33	347

*****ADJUSTED*****

ENO FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

HIGH SCHOOL GRADUATES

EDUCATION LEVEL- IV
MENTAL GROUP-
RACE- BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1
28	1	1	1	1	1	1
29	1	1	1	1	1	1
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	1	1	1
37	1	1	1	1	1	1
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1
41	1	1	1	1	1	1
42	1	1	1	1	1	1
43	1	1	1	1	1	1
44	1	1	1	1	1	1
45	1	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1
51	1	1	1	1	1	1
52	1	1	1	1	1	1
53	1	1	1	1	1	1
54	1	1	1	1	1	1
55	1	1	1	1	1	1
56	1	1	1	1	1	1
57	1	1	1	1	1	1
58	1	1	1	1	1	1
59	1	1	1	1	1	1
60	1	1	1	1	1	1
61	1	1	1	1	1	1
62	1	1	1	1	1	1
63	1	1	1	1	1	1
64	1	1	1	1	1	1
65	1	1	1	1	1	1
66	1	1	1	1	1	1
67	1	1	1	1	1	1
68	1	1	1	1	1	1
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
72	1	1	1	1	1	1
73	1	1	1	1	1	1
74	1	1	1	1	1	1
75	1	1	1	1	1	1
76	1	1	1	1	1	1
77	1	1	1	1	1	1
78	1	1	1	1	1	1
79	1	1	1	1	1	1
80	1	1	1	1	1	1
81	1	1	1	1	1	1
82	1	1	1	1	1	1
83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1
86	1	1	1	1	1	1
87	1	1	1	1	1	1
88	1	1	1	1	1	1
89	1	1	1	1	1	1
90	1	1	1	1	1	1
91	1	1	1	1	1	1
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1

END FY 1976 MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- I-III
RACE- NON BLACK

*****ADJUSTED*****

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	377	601	86A	532	43	2421
2	100	160	231	142	11	644
3	114	182	262	161	12	733
4	125	200	288	177	14	804
5	141	140	210	129	10	584
6	169	115	204	125	11	570
7	96	130	221	195	11	617
8	92	199	198	109	11	597
9	43	68	90	55	5	229
10	61	181	141	131	7	297
11	123	199	171	169	13	234
12	100	158	220	170	11	225
1	95	154	229	140	11	225
2	88	151	221	133	12	225
3	72	145	203	110	9	225
4	69	122	172	115	8	225
5	70	161	221	130	12	225
6	77	145	209	109	12	225
7	83	147	229	105	12	225
8	89	145	229	105	12	225
9	90	145	229	105	12	225
10	97	145	229	105	12	225
11	104	145	229	105	12	225
12	111	145	229	105	12	225
1	117	145	229	105	12	225
2	124	145	229	105	12	225
3	131	145	229	105	12	225
4	138	145	229	105	12	225
5	145	145	229	105	12	225
6	152	145	229	105	12	225
7	159	145	229	105	12	225
8	166	145	229	105	12	225
9	173	145	229	105	12	225
10	180	145	229	105	12	225
11	187	145	229	105	12	225
12	194	145	229	105	12	225
1	201	145	229	105	12	225
2	208	145	229	105	12	225
3	215	145	229	105	12	225
4	222	145	229	105	12	225
5	229	145	229	105	12	225
6	236	145	229	105	12	225
7	243	145	229	105	12	225
8	250	145	229	105	12	225
9	257	145	229	105	12	225
10	264	145	229	105	12	225
11	271	145	229	105	12	225
12	278	145	229	105	12	225
1	285	145	229	105	12	225
2	292	145	229	105	12	225
3	299	145	229	105	12	225
4	306	145	229	105	12	225
5	313	145	229	105	12	225
6	320	145	229	105	12	225
7	327	145	229	105	12	225
8	334	145	229	105	12	225
9	341	145	229	105	12	225
10	348	145	229	105	12	225
11	355	145	229	105	12	225
12	362	145	229	105	12	225
1	369	145	229	105	12	225
2	376	145	229	105	12	225
3	383	145	229	105	12	225
4	390	145	229	105	12	225
5	397	145	229	105	12	225
6	404	145	229	105	12	225
7	411	145	229	105	12	225
8	418	145	229	105	12	225
9	425	145	229	105	12	225
10	432	145	229	105	12	225
11	439	145	229	105	12	225
12	446	145	229	105	12	225
1	453	145	229	105	12	225
2	460	145	229	105	12	225
3	467	145	229	105	12	225
4	474	145	229	105	12	225
5	481	145	229	105	12	225
6	488	145	229	105	12	225
7	495	145	229	105	12	225
8	502	145	229	105	12	225
9	509	145	229	105	12	225
10	516	145	229	105	12	225
11	523	145	229	105	12	225
12	530	145	229	105	12	225
1	537	145	229	105	12	225
2	544	145	229	105	12	225
3	551	145	229	105	12	225
4	558	145	229	105	12	225
5	565	145	229	105	12	225
6	572	145	229	105	12	225
7	579	145	229	105	12	225
8	586	145	229	105	12	225
9	593	145	229	105	12	225
10	600	145	229	105	12	225
11	607	145	229	105	12	225
12	614	145	229	105	12	225
1	621	145	229	105	12	225
2	628	145	229	105	12	225
3	635	145	229	105	12	225
4	642	145	229	105	12	225
5	649	145	229	105	12	225
6	656	145	229	105	12	225
7	663	145	229	105	12	225
8	670	145	229	105	12	225
9	677	145	229	105	12	225
10	684	145	229	105	12	225
11	691	145	229	105	12	225
12	698	145	229	105	12	225
1	705	145	229	105	12	225
2	712	145	229	105	12	225
3	719	145	229	105	12	225
4	726	145	229	105	12	225
5	733	145	229	105	12	225
6	740	145	229	105	12	225
7	747	145	229	105	12	225
8	754	145	229	105	12	225
9	761	145	229	105	12	225
10	768	145	229	105	12	225
11	775	145	229	105	12	225
12	782	145	229	105	12	225
1	789	145	229	105	12	225
2	796	145	229	105	12	225
3	803	145	229	105	12	225
4	810	145	229	105	12	225
5	817	145	229	105	12	225
6	824	145	229	105	12	225
7	831	145	229	105	12	225
8	838	145	229	105	12	225
9	845	145	229	105	12	225
10	852	145	229	105	12	225
11	859	145	229	105	12	225
12	866	145	229	105	12	225
1	873	145	229	105	12	225
2	880	145	229	105	12	225
3	887	145	229	105	12	225
4	894	145	229	105	12	225
5	901	145	229	105	12	225
6	908	145	229	105	12	225
7	915	145	229	105	12	225
8	922	145	229	105	12	225
9	929	145	229	105	12	225
10	936	145	229	105	12	225
11	943	145	229	105	12	225
12	950	145	229	105	12	225
1	957	145	229	105	12	225
2	964	145	229	105	12	225
3	971	145	229	105	12	225
4	978	145	229	105	12	225
5	985	145	229	105	12	225
6	992	145	229	105	12	225
7	999	145	229	105	12	225
8	1006	145	229	105	12	225
9	1013	145	229	105	12	225
10	1020	145	229	105	12	225
11	1027	145	229	105	12	225
12	1034	145	229	105	12	225
1	1041	145	229	105	12	225
2	1048	145	229	105	12	225
3	1055	145	229	105	12	225
4	1062	145	229	105	12	225
5	1069	145	229	105	12	225
6	1076	145	229	105	12	225
7	1083	145	229	105	12	225
8	1090	145	229	105	12	225
9	1097	145	229	105	12	225
10	1104	145	229	105	12	225
11	1111	145	229	105	12	225
12	1118	145	229	105	12	225
1	1125	145	229	105	12	225
2	1132	145	229	105	12	225
3	1139	145	229	105	12	225
4	1146	145	229	105	12	225
5	1153	145	229	105	12	225
6	1160	145	229	105	12	225
7	1167	145	229	105	12	225
8	1174	145	229	105	12	225
9	1181	145	229	105	12	225
10	1188	145	229	105	12	225
11	1195	145	229	105	12	225
12	1202	145	229	105	12	225
1	1209	145	229	105	12	225
2	1216	145	229	105	12	225
3	1223	145	229	105	12	225
4	1230	145	229	105	12	225
5	1237	145	229	105	12	225
6	1244	145	229	105	12	225
7	1251	145	229	105	12	225
8	1258	145	229	105	12	225
9	1265	145	229	105	12	225
10	1272	145	229	105	12	225
11	1279	145	229	105	12	225
12	1286	145	229	105	12	225
1	1293	145	229	105	12	225
2	1300	145	229	105	12	225
3	1307	145	229	105	12	225
4	1314	145	229	105	12	225
5	1321	145	229	105	12	225
6	1328	145	229	105	12	225
7	1335	145	229	105	12	225
8	1342	145	229	105	12	225
9	1349	145	229	105	12	225
10	1356	145	229	105	12	225
11	1363	145	229	105	12	225
12	1370	145	229	1		

*****ADJUSTED*****

END FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- IIIIR
RACE- NON BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	NO 43	NO 322	NO 311	NO 201	NO 14	NO 895
2	AVG 1.06	AVG 1.06	AVG 1.04	AVG 1.06	AVG 1.06	AVG 1.06
3	1.17	1.17	1.17	1.17	1.17	1.17
4	1.22	1.22	1.22	1.22	1.22	1.22
5	1.44	1.44	1.44	1.44	1.44	1.44
6	1.57	1.57	1.57	1.57	1.57	1.57
7	1.69	1.69	1.69	1.69	1.69	1.69
8	1.75	1.75	1.75	1.75	1.75	1.75
9	1.85	1.85	1.85	1.85	1.85	1.85
10	1.92	1.92	1.92	1.92	1.92	1.92
11	1.95	1.95	1.95	1.95	1.95	1.95
12	1.97	1.97	1.97	1.97	1.97	1.97
13	1.98	1.98	1.98	1.98	1.98	1.98
14	1.99	1.99	1.99	1.99	1.99	1.99
15	2.00	2.00	2.00	2.00	2.00	2.00
16	2.01	2.01	2.01	2.01	2.01	2.01
17	2.02	2.02	2.02	2.02	2.02	2.02
18	2.03	2.03	2.03	2.03	2.03	2.03
19	2.04	2.04	2.04	2.04	2.04	2.04
20	2.05	2.05	2.05	2.05	2.05	2.05
21	2.06	2.06	2.06	2.06	2.06	2.06
22	2.07	2.07	2.07	2.07	2.07	2.07
23	2.08	2.08	2.08	2.08	2.08	2.08
24	2.09	2.09	2.09	2.09	2.09	2.09
25	2.10	2.10	2.10	2.10	2.10	2.10
26	2.11	2.11	2.11	2.11	2.11	2.11
27	2.12	2.12	2.12	2.12	2.12	2.12
28	2.13	2.13	2.13	2.13	2.13	2.13
29	2.14	2.14	2.14	2.14	2.14	2.14
30	2.15	2.15	2.15	2.15	2.15	2.15
31	2.16	2.16	2.16	2.16	2.16	2.16
32	2.17	2.17	2.17	2.17	2.17	2.17
33	2.18	2.18	2.18	2.18	2.18	2.18
34	2.19	2.19	2.19	2.19	2.19	2.19
35	2.20	2.20	2.20	2.20	2.20	2.20
36	2.21	2.21	2.21	2.21	2.21	2.21
37	2.22	2.22	2.22	2.22	2.22	2.22
38	2.23	2.23	2.23	2.23	2.23	2.23
39	2.24	2.24	2.24	2.24	2.24	2.24
40	2.25	2.25	2.25	2.25	2.25	2.25
41	2.26	2.26	2.26	2.26	2.26	2.26
42	2.27	2.27	2.27	2.27	2.27	2.27
43	2.28	2.28	2.28	2.28	2.28	2.28
44	2.29	2.29	2.29	2.29	2.29	2.29
45	2.30	2.30	2.30	2.30	2.30	2.30
46	2.31	2.31	2.31	2.31	2.31	2.31
47	2.32	2.32	2.32	2.32	2.32	2.32
48	2.33	2.33	2.33	2.33	2.33	2.33
49	2.34	2.34	2.34	2.34	2.34	2.34
50	2.35	2.35	2.35	2.35	2.35	2.35
51	2.36	2.36	2.36	2.36	2.36	2.36
52	2.37	2.37	2.37	2.37	2.37	2.37
53	2.38	2.38	2.38	2.38	2.38	2.38
54	2.39	2.39	2.39	2.39	2.39	2.39
55	2.40	2.40	2.40	2.40	2.40	2.40
56	2.41	2.41	2.41	2.41	2.41	2.41
57	2.42	2.42	2.42	2.42	2.42	2.42
58	2.43	2.43	2.43	2.43	2.43	2.43
59	2.44	2.44	2.44	2.44	2.44	2.44
60	2.45	2.45	2.45	2.45	2.45	2.45
61	2.46	2.46	2.46	2.46	2.46	2.46
62	2.47	2.47	2.47	2.47	2.47	2.47
63	2.48	2.48	2.48	2.48	2.48	2.48
64	2.49	2.49	2.49	2.49	2.49	2.49
65	2.50	2.50	2.50	2.50	2.50	2.50
66	2.51	2.51	2.51	2.51	2.51	2.51
67	2.52	2.52	2.52	2.52	2.52	2.52
68	2.53	2.53	2.53	2.53	2.53	2.53
69	2.54	2.54	2.54	2.54	2.54	2.54
70	2.55	2.55	2.55	2.55	2.55	2.55
71	2.56	2.56	2.56	2.56	2.56	2.56
72	2.57	2.57	2.57	2.57	2.57	2.57
73	2.58	2.58	2.58	2.58	2.58	2.58
74	2.59	2.59	2.59	2.59	2.59	2.59
75	2.60	2.60	2.60	2.60	2.60	2.60
76	2.61	2.61	2.61	2.61	2.61	2.61
77	2.62	2.62	2.62	2.62	2.62	2.62
78	2.63	2.63	2.63	2.63	2.63	2.63
79	2.64	2.64	2.64	2.64	2.64	2.64
80	2.65	2.65	2.65	2.65	2.65	2.65
81	2.66	2.66	2.66	2.66	2.66	2.66
82	2.67	2.67	2.67	2.67	2.67	2.67
83	2.68	2.68	2.68	2.68	2.68	2.68
84	2.69	2.69	2.69	2.69	2.69	2.69
85	2.70	2.70	2.70	2.70	2.70	2.70
86	2.71	2.71	2.71	2.71	2.71	2.71
87	2.72	2.72	2.72	2.72	2.72	2.72
88	2.73	2.73	2.73	2.73	2.73	2.73
89	2.74	2.74	2.74	2.74	2.74	2.74
90	2.75	2.75	2.75	2.75	2.75	2.75
91	2.76	2.76	2.76	2.76	2.76	2.76
92	2.77	2.77	2.77	2.77	2.77	2.77
93	2.78	2.78	2.78	2.78	2.78	2.78
94	2.79	2.79	2.79	2.79	2.79	2.79
95	2.80	2.80	2.80	2.80	2.80	2.80
96	2.81	2.81	2.81	2.81	2.81	2.81
97	2.82	2.82	2.82	2.82	2.82	2.82
98	2.83	2.83	2.83	2.83	2.83	2.83
99	2.84	2.84	2.84	2.84	2.84	2.84
100	2.85	2.85	2.85	2.85	2.85	2.85

*****ADJUSTED*****		END FY 1976		MARINE CORPS		AVERAGE RANK IN THE NTH MONTH	
MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD		NONE	TOTAL
	NO	NO	NO	OTHER	AVG	NO	AVG
1	3	127	100	63	1.03	7	1.03
2	1	22	24	12	1.03	2	1.03
3	1	22	22	12	1.03	1	1.03
4	1	22	22	12	1.03	1	1.03
5	1	22	22	12	1.03	1	1.03
6	1	22	22	12	1.03	1	1.03
7	1	22	22	12	1.03	1	1.03
8	1	22	22	12	1.03	1	1.03
9	1	22	22	12	1.03	1	1.03
10	1	22	22	12	1.03	1	1.03
11	1	22	22	12	1.03	1	1.03
12	1	22	22	12	1.03	1	1.03
13	1	22	22	12	1.03	1	1.03
14	1	22	22	12	1.03	1	1.03
15	1	22	22	12	1.03	1	1.03
16	1	22	22	12	1.03	1	1.03
17	1	22	22	12	1.03	1	1.03
18	1	22	22	12	1.03	1	1.03
19	1	22	22	12	1.03	1	1.03
20	1	22	22	12	1.03	1	1.03
21	1	22	22	12	1.03	1	1.03
22	1	22	22	12	1.03	1	1.03
23	1	22	22	12	1.03	1	1.03
24	1	22	22	12	1.03	1	1.03
25	1	22	22	12	1.03	1	1.03
26	1	22	22	12	1.03	1	1.03
27	1	22	22	12	1.03	1	1.03
28	1	22	22	12	1.03	1	1.03
29	1	22	22	12	1.03	1	1.03
30	1	22	22	12	1.03	1	1.03
31	1	22	22	12	1.03	1	1.03
32	1	22	22	12	1.03	1	1.03
33	1	22	22	12	1.03	1	1.03
34	1	22	22	12	1.03	1	1.03
35	1	22	22	12	1.03	1	1.03
36	1	22	22	12	1.03	1	1.03
37	1	22	22	12	1.03	1	1.03
38	1	22	22	12	1.03	1	1.03
39	1	22	22	12	1.03	1	1.03
40	1	22	22	12	1.03	1	1.03
41	1	22	22	12	1.03	1	1.03
42	1	22	22	12	1.03	1	1.03
43	1	22	22	12	1.03	1	1.03
44	1	22	22	12	1.03	1	1.03
45	1	22	22	12	1.03	1	1.03
46	1	22	22	12	1.03	1	1.03
47	1	22	22	12	1.03	1	1.03
48	1	22	22	12	1.03	1	1.03
49	1	22	22	12	1.03	1	1.03
50	1	22	22	12	1.03	1	1.03
51	1	22	22	12	1.03	1	1.03
52	1	22	22	12	1.03	1	1.03
53	1	22	22	12	1.03	1	1.03
54	1	22	22	12	1.03	1	1.03
55	1	22	22	12	1.03	1	1.03
56	1	22	22	12	1.03	1	1.03
57	1	22	22	12	1.03	1	1.03
58	1	22	22	12	1.03	1	1.03
59	1	22	22	12	1.03	1	1.03
60	1	22	22	12	1.03	1	1.03
61	1	22	22	12	1.03	1	1.03
62	1	22	22	12	1.03	1	1.03
63	1	22	22	12	1.03	1	1.03
64	1	22	22	12	1.03	1	1.03
65	1	22	22	12	1.03	1	1.03
66	1	22	22	12	1.03	1	1.03
67	1	22	22	12	1.03	1	1.03
68	1	22	22	12	1.03	1	1.03
69	1	22	22	12	1.03	1	1.03
70	1	22	22	12	1.03	1	1.03
71	1	22	22	12	1.03	1	1.03
72	1	22	22	12	1.03	1	1.03
73	1	22	22	12	1.03	1	1.03
74	1	22	22	12	1.03	1	1.03
75	1	22	22	12	1.03	1	1.03
76	1	22	22	12	1.03	1	1.03
77	1	22	22	12	1.03	1	1.03
78	1	22	22	12	1.03	1	1.03
79	1	22	22	12	1.03	1	1.03
80	1	22	22	12	1.03	1	1.03
81	1	22	22	12	1.03	1	1.03
82	1	22	22	12	1.03	1	1.03
83	1	22	22	12	1.03	1	1.03
84	1	22	22	12	1.03	1	1.03
85	1	22	22	12	1.03	1	1.03
86	1	22	22	12	1.03	1	1.03
87	1	22	22	12	1.03	1	1.03
88	1	22	22	12	1.03	1	1.03
89	1	22	22	12	1.03	1	1.03
90	1	22	22	12	1.03	1	1.03
91	1	22	22	12	1.03	1	1.03
92	1	22	22	12	1.03	1	1.03
93	1	22	22	12	1.03	1	1.03
94	1	22	22	12	1.03	1	1.03
95	1	22	22	12	1.03	1	1.03
96	1	22	22	12	1.03	1	1.03
97	1	22	22	12	1.03	1	1.03
98	1	22	22	12	1.03	1	1.03
99	1	22	22	12	1.03	1	1.03
100	1	22	22	12	1.03	1	1.03

*****ADJUSTED*****

END FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL - IV
MENTAL GROUP - NON-HIGH SCHOOL GRADUATES

RACE - NON BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	NO	NO	NO	NO	NO	NO
2	AVG	AVG	AVG	AVG	AVG	AVG
3	1.00	1.21	1.10	1.27	1.04	1.17
4	1.00	1.30	1.44	1.50	1.35	1.37
5	1.25	1.01	1.37	1.63	1.23	1.37
6	1.43	1.64	1.65	1.77	1.65	1.61
7	1.00	1.15	1.87	2.09	1.85	1.82
8	1.50	1.17	2.26	1.99	1.87	1.94
9	2.25	1.17	2.26	1.22	1.87	1.63
10	2.25	1.08	2.44	1.22	1.00	1.63
11	2.25	1.43	2.44	1.22	1.00	1.63
12	2.25	1.43	2.44	1.22	1.00	1.63
13	2.25	1.43	2.44	1.22	1.00	1.63
14	2.25	1.43	2.44	1.22	1.00	1.63
15	2.25	1.43	2.44	1.22	1.00	1.63
16	2.25	1.43	2.44	1.22	1.00	1.63
17	2.25	1.43	2.44	1.22	1.00	1.63
18	2.25	1.43	2.44	1.22	1.00	1.63
19	2.25	1.43	2.44	1.22	1.00	1.63
20	2.25	1.43	2.44	1.22	1.00	1.63
21	2.25	1.43	2.44	1.22	1.00	1.63
22	2.25	1.43	2.44	1.22	1.00	1.63
23	2.25	1.43	2.44	1.22	1.00	1.63
24	2.25	1.43	2.44	1.22	1.00	1.63
25	2.25	1.43	2.44	1.22	1.00	1.63
26	2.25	1.43	2.44	1.22	1.00	1.63
27	2.25	1.43	2.44	1.22	1.00	1.63
28	2.25	1.43	2.44	1.22	1.00	1.63
29	2.25	1.43	2.44	1.22	1.00	1.63
30	2.25	1.43	2.44	1.22	1.00	1.63
31	2.25	1.43	2.44	1.22	1.00	1.63
32	2.25	1.43	2.44	1.22	1.00	1.63
33	2.25	1.43	2.44	1.22	1.00	1.63
34	2.25	1.43	2.44	1.22	1.00	1.63
35	2.25	1.43	2.44	1.22	1.00	1.63
36	2.25	1.43	2.44	1.22	1.00	1.63
37	2.25	1.43	2.44	1.22	1.00	1.63
38	2.25	1.43	2.44	1.22	1.00	1.63
39	2.25	1.43	2.44	1.22	1.00	1.63
40	2.25	1.43	2.44	1.22	1.00	1.63
41	2.25	1.43	2.44	1.22	1.00	1.63
42	2.25	1.43	2.44	1.22	1.00	1.63
43	2.25	1.43	2.44	1.22	1.00	1.63
44	2.25	1.43	2.44	1.22	1.00	1.63
45	2.25	1.43	2.44	1.22	1.00	1.63
46	2.25	1.43	2.44	1.22	1.00	1.63
47	2.25	1.43	2.44	1.22	1.00	1.63
48	2.25	1.43	2.44	1.22	1.00	1.63
49	2.25	1.43	2.44	1.22	1.00	1.63
50	2.25	1.43	2.44	1.22	1.00	1.63
51	2.25	1.43	2.44	1.22	1.00	1.63
52	2.25	1.43	2.44	1.22	1.00	1.63
53	2.25	1.43	2.44	1.22	1.00	1.63
54	2.25	1.43	2.44	1.22	1.00	1.63
55	2.25	1.43	2.44	1.22	1.00	1.63
56	2.25	1.43	2.44	1.22	1.00	1.63
57	2.25	1.43	2.44	1.22	1.00	1.63
58	2.25	1.43	2.44	1.22	1.00	1.63
59	2.25	1.43	2.44	1.22	1.00	1.63
60	2.25	1.43	2.44	1.22	1.00	1.63
61	2.25	1.43	2.44	1.22	1.00	1.63
62	2.25	1.43	2.44	1.22	1.00	1.63
63	2.25	1.43	2.44	1.22	1.00	1.63
64	2.25	1.43	2.44	1.22	1.00	1.63
65	2.25	1.43	2.44	1.22	1.00	1.63
66	2.25	1.43	2.44	1.22	1.00	1.63
67	2.25	1.43	2.44	1.22	1.00	1.63
68	2.25	1.43	2.44	1.22	1.00	1.63
69	2.25	1.43	2.44	1.22	1.00	1.63
70	2.25	1.43	2.44	1.22	1.00	1.63
71	2.25	1.43	2.44	1.22	1.00	1.63
72	2.25	1.43	2.44	1.22	1.00	1.63
73	2.25	1.43	2.44	1.22	1.00	1.63
74	2.25	1.43	2.44	1.22	1.00	1.63
75	2.25	1.43	2.44	1.22	1.00	1.63
76	2.25	1.43	2.44	1.22	1.00	1.63
77	2.25	1.43	2.44	1.22	1.00	1.63
78	2.25	1.43	2.44	1.22	1.00	1.63
79	2.25	1.43	2.44	1.22	1.00	1.63
80	2.25	1.43	2.44	1.22	1.00	1.63
81	2.25	1.43	2.44	1.22	1.00	1.63
82	2.25	1.43	2.44	1.22	1.00	1.63
83	2.25	1.43	2.44	1.22	1.00	1.63
84	2.25	1.43	2.44	1.22	1.00	1.63
85	2.25	1.43	2.44	1.22	1.00	1.63
86	2.25	1.43	2.44	1.22	1.00	1.63
87	2.25	1.43	2.44	1.22	1.00	1.63
88	2.25	1.43	2.44	1.22	1.00	1.63
89	2.25	1.43	2.44	1.22	1.00	1.63
90	2.25	1.43	2.44	1.22	1.00	1.63
91	2.25	1.43	2.44	1.22	1.00	1.63
92	2.25	1.43	2.44	1.22	1.00	1.63
93	2.25	1.43	2.44	1.22	1.00	1.63
94	2.25	1.43	2.44	1.22	1.00	1.63
95	2.25	1.43	2.44	1.22	1.00	1.63
96	2.25	1.43	2.44	1.22	1.00	1.63
97	2.25	1.43	2.44	1.22	1.00	1.63
98	2.25	1.43	2.44	1.22	1.00	1.63
99	2.25	1.43	2.44	1.22	1.00	1.63
100	2.25	1.43	2.44	1.22	1.00	1.63

*****ADJUSTED*****

END FY 1976

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV
MENTAL GROUP-
RACE- BLACK

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1
28	1	1	1	1	1	1
29	1	1	1	1	1	1
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	1	1	1
37	1	1	1	1	1	1
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1
41	1	1	1	1	1	1
42	1	1	1	1	1	1
43	1	1	1	1	1	1
44	1	1	1	1	1	1
45	1	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1
51	1	1	1	1	1	1
52	1	1	1	1	1	1
53	1	1	1	1	1	1
54	1	1	1	1	1	1
55	1	1	1	1	1	1
56	1	1	1	1	1	1
57	1	1	1	1	1	1
58	1	1	1	1	1	1
59	1	1	1	1	1	1
60	1	1	1	1	1	1
61	1	1	1	1	1	1
62	1	1	1	1	1	1
63	1	1	1	1	1	1
64	1	1	1	1	1	1
65	1	1	1	1	1	1
66	1	1	1	1	1	1
67	1	1	1	1	1	1
68	1	1	1	1	1	1
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
72	1	1	1	1	1	1
73	1	1	1	1	1	1
74	1	1	1	1	1	1
75	1	1	1	1	1	1
76	1	1	1	1	1	1
77	1	1	1	1	1	1
78	1	1	1	1	1	1
79	1	1	1	1	1	1
80	1	1	1	1	1	1
81	1	1	1	1	1	1
82	1	1	1	1	1	1
83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1
86	1	1	1	1	1	1
87	1	1	1	1	1	1
88	1	1	1	1	1	1
89	1	1	1	1	1	1
90	1	1	1	1	1	1
91	1	1	1	1	1	1
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1

*****ADJUSTED*****

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- HIGH SCHOOL GRADUATES

MENTAL GROUP- I-III

RACE- TOTAL

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	445	595	1029	674	51	2794
2	125	166	1285	1266	15	2770
3	117	134	411	1240	20	1124
4	117	134	453	1240	20	1124
5	117	134	453	1240	20	1124
6	117	134	453	1240	20	1124
7	117	134	453	1240	20	1124
8	117	134	453	1240	20	1124
9	117	134	453	1240	20	1124
10	117	134	453	1240	20	1124
11	117	134	453	1240	20	1124
12	117	134	453	1240	20	1124
13	117	134	453	1240	20	1124
14	117	134	453	1240	20	1124
15	117	134	453	1240	20	1124
16	117	134	453	1240	20	1124
17	117	134	453	1240	20	1124
18	117	134	453	1240	20	1124
19	117	134	453	1240	20	1124
20	117	134	453	1240	20	1124
21	117	134	453	1240	20	1124
22	117	134	453	1240	20	1124
23	117	134	453	1240	20	1124
24	117	134	453	1240	20	1124
25	117	134	453	1240	20	1124
26	117	134	453	1240	20	1124
27	117	134	453	1240	20	1124
28	117	134	453	1240	20	1124
29	117	134	453	1240	20	1124
30	117	134	453	1240	20	1124
31	117	134	453	1240	20	1124
32	117	134	453	1240	20	1124
33	117	134	453	1240	20	1124
34	117	134	453	1240	20	1124
35	117	134	453	1240	20	1124
36	117	134	453	1240	20	1124
37	117	134	453	1240	20	1124
38	117	134	453	1240	20	1124
39	117	134	453	1240	20	1124
40	117	134	453	1240	20	1124
41	117	134	453	1240	20	1124
42	117	134	453	1240	20	1124
43	117	134	453	1240	20	1124
44	117	134	453	1240	20	1124
45	117	134	453	1240	20	1124
46	117	134	453	1240	20	1124
47	117	134	453	1240	20	1124
48	117	134	453	1240	20	1124
49	117	134	453	1240	20	1124
50	117	134	453	1240	20	1124
51	117	134	453	1240	20	1124
52	117	134	453	1240	20	1124
53	117	134	453	1240	20	1124
54	117	134	453	1240	20	1124
55	117	134	453	1240	20	1124
56	117	134	453	1240	20	1124
57	117	134	453	1240	20	1124
58	117	134	453	1240	20	1124
59	117	134	453	1240	20	1124
60	117	134	453	1240	20	1124
61	117	134	453	1240	20	1124
62	117	134	453	1240	20	1124
63	117	134	453	1240	20	1124
64	117	134	453	1240	20	1124
65	117	134	453	1240	20	1124
66	117	134	453	1240	20	1124
67	117	134	453	1240	20	1124
68	117	134	453	1240	20	1124
69	117	134	453	1240	20	1124
70	117	134	453	1240	20	1124
71	117	134	453	1240	20	1124
72	117	134	453	1240	20	1124
73	117	134	453	1240	20	1124
74	117	134	453	1240	20	1124
75	117	134	453	1240	20	1124
76	117	134	453	1240	20	1124
77	117	134	453	1240	20	1124
78	117	134	453	1240	20	1124
79	117	134	453	1240	20	1124
80	117	134	453	1240	20	1124
81	117	134	453	1240	20	1124
82	117	134	453	1240	20	1124
83	117	134	453	1240	20	1124
84	117	134	453	1240	20	1124
85	117	134	453	1240	20	1124
86	117	134	453	1240	20	1124
87	117	134	453	1240	20	1124
88	117	134	453	1240	20	1124
89	117	134	453	1240	20	1124
90	117	134	453	1240	20	1124
91	117	134	453	1240	20	1124
92	117	134	453	1240	20	1124
93	117	134	453	1240	20	1124
94	117	134	453	1240	20	1124
95	117	134	453	1240	20	1124
96	117	134	453	1240	20	1124
97	117	134	453	1240	20	1124
98	117	134	453	1240	20	1124
99	117	134	453	1240	20	1124
100	117	134	453	1240	20	1124

[illegible]

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH HIGH SCHOOL GRADUATES

	EDUCATION LEVEL- MENTAL GROUP-	IV TOTAL
RACE-		
WHITE	60	100
Negro	40	100
Total	100	200

B-2-33

*****ADJUSTED*****

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- I-III
RACE- TOTAL

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELD OTHER	NONE	TOTAL
1	AVG 1.10	AVG 1.10	AVG 1.10	AVG 1.10	AVG 1.10	AVG 1.10
2	1.10	1.10	1.10	1.10	1.10	1.10
3	1.10	1.10	1.10	1.10	1.10	1.10
4	1.10	1.10	1.10	1.10	1.10	1.10
5	1.10	1.10	1.10	1.10	1.10	1.10
6	1.10	1.10	1.10	1.10	1.10	1.10
7	1.10	1.10	1.10	1.10	1.10	1.10
8	1.10	1.10	1.10	1.10	1.10	1.10
9	1.10	1.10	1.10	1.10	1.10	1.10
10	1.10	1.10	1.10	1.10	1.10	1.10
11	1.10	1.10	1.10	1.10	1.10	1.10
12	1.10	1.10	1.10	1.10	1.10	1.10
13	1.10	1.10	1.10	1.10	1.10	1.10
14	1.10	1.10	1.10	1.10	1.10	1.10
15	1.10	1.10	1.10	1.10	1.10	1.10
16	1.10	1.10	1.10	1.10	1.10	1.10
17	1.10	1.10	1.10	1.10	1.10	1.10
18	1.10	1.10	1.10	1.10	1.10	1.10
19	1.10	1.10	1.10	1.10	1.10	1.10
20	1.10	1.10	1.10	1.10	1.10	1.10
21	1.10	1.10	1.10	1.10	1.10	1.10
22	1.10	1.10	1.10	1.10	1.10	1.10
23	1.10	1.10	1.10	1.10	1.10	1.10
24	1.10	1.10	1.10	1.10	1.10	1.10
25	1.10	1.10	1.10	1.10	1.10	1.10
26	1.10	1.10	1.10	1.10	1.10	1.10
27	1.10	1.10	1.10	1.10	1.10	1.10
28	1.10	1.10	1.10	1.10	1.10	1.10
29	1.10	1.10	1.10	1.10	1.10	1.10
30	1.10	1.10	1.10	1.10	1.10	1.10
31	1.10	1.10	1.10	1.10	1.10	1.10
32	1.10	1.10	1.10	1.10	1.10	1.10
33	1.10	1.10	1.10	1.10	1.10	1.10
34	1.10	1.10	1.10	1.10	1.10	1.10
35	1.10	1.10	1.10	1.10	1.10	1.10
36	1.10	1.10	1.10	1.10	1.10	1.10
37	1.10	1.10	1.10	1.10	1.10	1.10
38	1.10	1.10	1.10	1.10	1.10	1.10
39	1.10	1.10	1.10	1.10	1.10	1.10
40	1.10	1.10	1.10	1.10	1.10	1.10
41	1.10	1.10	1.10	1.10	1.10	1.10
42	1.10	1.10	1.10	1.10	1.10	1.10
43	1.10	1.10	1.10	1.10	1.10	1.10
44	1.10	1.10	1.10	1.10	1.10	1.10
45	1.10	1.10	1.10	1.10	1.10	1.10
46	1.10	1.10	1.10	1.10	1.10	1.10
47	1.10	1.10	1.10	1.10	1.10	1.10
48	1.10	1.10	1.10	1.10	1.10	1.10
49	1.10	1.10	1.10	1.10	1.10	1.10
50	1.10	1.10	1.10	1.10	1.10	1.10
51	1.10	1.10	1.10	1.10	1.10	1.10
52	1.10	1.10	1.10	1.10	1.10	1.10
53	1.10	1.10	1.10	1.10	1.10	1.10
54	1.10	1.10	1.10	1.10	1.10	1.10
55	1.10	1.10	1.10	1.10	1.10	1.10
56	1.10	1.10	1.10	1.10	1.10	1.10
57	1.10	1.10	1.10	1.10	1.10	1.10
58	1.10	1.10	1.10	1.10	1.10	1.10
59	1.10	1.10	1.10	1.10	1.10	1.10
60	1.10	1.10	1.10	1.10	1.10	1.10
61	1.10	1.10	1.10	1.10	1.10	1.10
62	1.10	1.10	1.10	1.10	1.10	1.10
63	1.10	1.10	1.10	1.10	1.10	1.10
64	1.10	1.10	1.10	1.10	1.10	1.10
65	1.10	1.10	1.10	1.10	1.10	1.10
66	1.10	1.10	1.10	1.10	1.10	1.10
67	1.10	1.10	1.10	1.10	1.10	1.10
68	1.10	1.10	1.10	1.10	1.10	1.10
69	1.10	1.10	1.10	1.10	1.10	1.10
70	1.10	1.10	1.10	1.10	1.10	1.10
71	1.10	1.10	1.10	1.10	1.10	1.10
72	1.10	1.10	1.10	1.10	1.10	1.10
73	1.10	1.10	1.10	1.10	1.10	1.10
74	1.10	1.10	1.10	1.10	1.10	1.10
75	1.10	1.10	1.10	1.10	1.10	1.10
76	1.10	1.10	1.10	1.10	1.10	1.10
77	1.10	1.10	1.10	1.10	1.10	1.10
78	1.10	1.10	1.10	1.10	1.10	1.10
79	1.10	1.10	1.10	1.10	1.10	1.10
80	1.10	1.10	1.10	1.10	1.10	1.10
81	1.10	1.10	1.10	1.10	1.10	1.10
82	1.10	1.10	1.10	1.10	1.10	1.10
83	1.10	1.10	1.10	1.10	1.10	1.10
84	1.10	1.10	1.10	1.10	1.10	1.10
85	1.10	1.10	1.10	1.10	1.10	1.10
86	1.10	1.10	1.10	1.10	1.10	1.10
87	1.10	1.10	1.10	1.10	1.10	1.10
88	1.10	1.10	1.10	1.10	1.10	1.10
89	1.10	1.10	1.10	1.10	1.10	1.10
90	1.10	1.10	1.10	1.10	1.10	1.10
91	1.10	1.10	1.10	1.10	1.10	1.10
92	1.10	1.10	1.10	1.10	1.10	1.10
93	1.10	1.10	1.10	1.10	1.10	1.10
94	1.10	1.10	1.10	1.10	1.10	1.10
95	1.10	1.10	1.10	1.10	1.10	1.10
96	1.10	1.10	1.10	1.10	1.10	1.10
97	1.10	1.10	1.10	1.10	1.10	1.10
98	1.10	1.10	1.10	1.10	1.10	1.10
99	1.10	1.10	1.10	1.10	1.10	1.10
100	1.10	1.10	1.10	1.10	1.10	1.10

MARINE CORPS

*****ADJUSTED*****

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- NON-HIGH SCHOOL GRADUATES
MENTAL GROUP- IIIIR
RACE- TOTAL

MONTH	AVIATION		COMBAT		GROUND SUPP		OCCUPATION FIELD OTHER		NONE		TOTAL	
	NO	AVG	NO	AVG	NO	AVG	NO	AVG	NO	AVG	NO	AVG
1	46	1.13	450	1.14	411	1.05	264	1.14	25	1.14	196	1.05
2	17	1.16	115	1.16	140	1.13	70	1.16	6	1.16	316	1.13
3	17	1.23	118	1.22	110	1.23	91	1.23	7	1.23	406	1.22
4	16	1.14	143	1.14	133	1.13	71	1.14	8	1.14	324	1.13
5	14	1.57	196	1.48	182	1.39	89	1.44	5	1.38	337	1.44
6	14	1.57	121	1.57	112	1.67	57	1.77	7	1.59	326	1.64
7	12	1.65	103	1.91	116	1.77	62	1.85	5	1.69	277	1.84
8	11	1.55	94	1.98	93	1.80	60	1.86	6	1.53	227	1.84
9	5	1.97	54	1.94	85	1.88	55	1.88	4	1.53	143	1.84
10	5	1.97	53	1.97	76	1.82	31	1.86	4	1.53	140	1.84
11	5	1.97	53	1.97	76	1.82	31	1.86	4	1.53	140	1.84
12	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
13	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
14	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
15	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
16	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
17	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
18	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
19	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
20	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
21	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
22	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
23	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
24	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
25	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
26	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
27	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
28	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
29	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
30	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
31	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
32	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
33	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
34	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
35	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
36	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
37	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
38	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
39	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
40	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
41	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
42	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
43	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
44	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
45	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
46	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
47	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
48	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
49	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97
50	1	1.97	140	1.97	125	1.97	108	1.97	1	1.97	440	1.97

*****ADJUSTED*****

MARINE CORPS

AVERAGE RANK IN THE NTH MONTH

EDUCATION LEVEL- IV
MENTAL GROUP- NON-HIGH SCHOOL GRADUATES
RACE- TOTAL

MONTH	AVIATION	COMBAT	GROUND SUPP	OCCUPATION FIELO OTHER	NONE	TOTAL
1	AVG 26	AVG 47	AVG 26	AVG 47	AVG 26	AVG 47
2	1000	1000	1000	1000	1000	1000
3	1000	1000	1000	1000	1000	1000
4	1000	1000	1000	1000	1000	1000
5	1000	1000	1000	1000	1000	1000
6	1000	1000	1000	1000	1000	1000
7	1000	1000	1000	1000	1000	1000
8	1000	1000	1000	1000	1000	1000
9	1000	1000	1000	1000	1000	1000
10	1000	1000	1000	1000	1000	1000
11	1000	1000	1000	1000	1000	1000
12	1000	1000	1000	1000	1000	1000
13	1000	1000	1000	1000	1000	1000
14	1000	1000	1000	1000	1000	1000
15	1000	1000	1000	1000	1000	1000
16	1000	1000	1000	1000	1000	1000
17	1000	1000	1000	1000	1000	1000
18	1000	1000	1000	1000	1000	1000
19	1000	1000	1000	1000	1000	1000
20	1000	1000	1000	1000	1000	1000
21	1000	1000	1000	1000	1000	1000
22	1000	1000	1000	1000	1000	1000
23	1000	1000	1000	1000	1000	1000
24	1000	1000	1000	1000	1000	1000
25	1000	1000	1000	1000	1000	1000
26	1000	1000	1000	1000	1000	1000
27	1000	1000	1000	1000	1000	1000
28	1000	1000	1000	1000	1000	1000
29	1000	1000	1000	1000	1000	1000
30	1000	1000	1000	1000	1000	1000
31	1000	1000	1000	1000	1000	1000
32	1000	1000	1000	1000	1000	1000
33	1000	1000	1000	1000	1000	1000
34	1000	1000	1000	1000	1000	1000
35	1000	1000	1000	1000	1000	1000
36	1000	1000	1000	1000	1000	1000
37	1000	1000	1000	1000	1000	1000
38	1000	1000	1000	1000	1000	1000
39	1000	1000	1000	1000	1000	1000
40	1000	1000	1000	1000	1000	1000
41	1000	1000	1000	1000	1000	1000
42	1000	1000	1000	1000	1000	1000
43	1000	1000	1000	1000	1000	1000
44	1000	1000	1000	1000	1000	1000
45	1000	1000	1000	1000	1000	1000
46	1000	1000	1000	1000	1000	1000
47	1000	1000	1000	1000	1000	1000
48	1000	1000	1000	1000	1000	1000
49	1000	1000	1000	1000	1000	1000
50	1000	1000	1000	1000	1000	1000
51	1000	1000	1000	1000	1000	1000
52	1000	1000	1000	1000	1000	1000
53	1000	1000	1000	1000	1000	1000
54	1000	1000	1000	1000	1000	1000
55	1000	1000	1000	1000	1000	1000
56	1000	1000	1000	1000	1000	1000
57	1000	1000	1000	1000	1000	1000
58	1000	1000	1000	1000	1000	1000
59	1000	1000	1000	1000	1000	1000
60	1000	1000	1000	1000	1000	1000
61	1000	1000	1000	1000	1000	1000
62	1000	1000	1000	1000	1000	1000
63	1000	1000	1000	1000	1000	1000
64	1000	1000	1000	1000	1000	1000
65	1000	1000	1000	1000	1000	1000
66	1000	1000	1000	1000	1000	1000
67	1000	1000	1000	1000	1000	1000
68	1000	1000	1000	1000	1000	1000
69	1000	1000	1000	1000	1000	1000
70	1000	1000	1000	1000	1000	1000
71	1000	1000	1000	1000	1000	1000
72	1000	1000	1000	1000	1000	1000
73	1000	1000	1000	1000	1000	1000
74	1000	1000	1000	1000	1000	1000
75	1000	1000	1000	1000	1000	1000
76	1000	1000	1000	1000	1000	1000
77	1000	1000	1000	1000	1000	1000
78	1000	1000	1000	1000	1000	1000
79	1000	1000	1000	1000	1000	1000
80	1000	1000	1000	1000	1000	1000
81	1000	1000	1000	1000	1000	1000
82	1000	1000	1000	1000	1000	1000
83	1000	1000	1000	1000	1000	1000
84	1000	1000	1000	1000	1000	1000
85	1000	1000	1000	1000	1000	1000
86	1000	1000	1000	1000	1000	1000
87	1000	1000	1000	1000	1000	1000
88	1000	1000	1000	1000	1000	1000
89	1000	1000	1000	1000	1000	1000
90	1000	1000	1000	1000	1000	1000
91	1000	1000	1000	1000	1000	1000
92	1000	1000	1000	1000	1000	1000
93	1000	1000	1000	1000	1000	1000
94	1000	1000	1000	1000	1000	1000
95	1000	1000	1000	1000	1000	1000
96	1000	1000	1000	1000	1000	1000
97	1000	1000	1000	1000	1000	1000
98	1000	1000	1000	1000	1000	1000
99	1000	1000	1000	1000	1000	1000
100	1000	1000	1000	1000	1000	1000

NUMBER OF RECORDS READ 173595

Appendix C

DIRECT AND TOTAL COSTS OF TRAINING
FOR NAVY C-SCHOOLS

TYPE	SCHOOL	TOTAL COST	WORK* UNITS	SCHOOL LENGTH	TOTAL ATTR	COST PER GRADUATE TOTAL	VARIABLE
CI	ASAC	492018.0	114.0	4.0	22.0	3984.0	1854.4
CI	AIC SUPV	57495.0	15.0	4.0	1.0	3538.2	1408.6
CI	AIC-CON REF	5917.0	1.0	2.0	0.0	2730.9	1666.2
CI	CIC/AIC BAS	424642.0	99.0	6.0	20.0	5939.1	2744.8
CI	AIC NTDS	311321.0	83.0	6.0	28.0	5188.5	1994.2
CI	NTDS INPUT	1211753.0	340.0	3.0	28.0	2467.4	1066.1
CI	OS-ACV	1145509.0	336.0	12.0	27.0	9441.1	4068.7
CI	GUN MT 3/5J	433429.0	96.0	4.0	5.0	4167.6	1473.1
CI	GUN MT 5/54	178573.0	39.0	7.0	0.0	7396.6	2681.2
CI	GFCs MK68	59031.0	12.0	4.0	2.0	4540.9	1826.1
CI	GFCs-MK3MT	111554.0	25.0	3.0	0.0	3089.2	1053.1
CI	RDR SIG EOP	315893.0	72.0	7.0	0.0	7087.4	2336.5
CI	GFCs MK56-M	156734.0	35.0	3.0	4.0	3099.7	1063.6
CI	GFCsRDRMK25	44462.0	9.0	3.0	0.0	3420.2	1364.1
CI	CMPTN MT-1A	46721.0	10.0	4.0	0.0	4312.7	1597.9
CI	PROG NTDS	111956.0	29.0	3.0	4.0	4672.7	1287.4
CI	PROG-MACHLG	310857.0	89.0	5.0	12.0	4030.2	1721.3
CI	PROG-UYK-7	280116.0	79.0	6.0	5.0	4909.6	2138.9
CI	TSC-ASW OPR	395583.0	96.0	6.0	1.0	5735.6	2663.5
CI	TSC-ASW MT	232396.0	55.0	10.0	0.0	9750.9	4680.9
CI	TSC-OP DPR	249652.0	61.0	8.0	1.0	7556.9	3500.9
CI	DS TECH	211712.0	51.0	12.0	0.0	11495.8	5411.7
CI	CV-TSC-ACOU	81823.0	20.0	8.0	0.0	7552.9	3496.9
CI	CV-TSC SYS	97079.0	19.0	4.0	1.0	4716.4	2688.4
CI	RMC	129884.0	18.0	12.0	0.0	19982.3	15341.0
CI	INST BAS	491374.0	215.0	3.8	6.0	2004.2	1587.6
CI	UWFC-114MT	876605.0	378.0	12.0	7.0	6422.1	4849.1
CI	UWFC-114OP	528894.0	265.0	2.0	4.0	921.2	659.0
CI	UWFC-11MT	144326.0	56.0	16.0	8.0	9516.1	7418.8
CI	UWFC-111 OP	76778.0	33.0	2.0	1.0	1073.8	811.7
CI	SQS230G	317356.0	161.0	3.0	2.0	1364.7	971.4
CI	SQS-23 TRAM	182044.0	85.0	12.0	0.0	5930.9	4357.9
CI	SQ-23 PAIR	75735.0	304.0	14.0	3.0	7978.5	6143.4
CI	SQ-23 PROP	432010.0	193.0	5.0	3.0	2582.8	1927.4
CI	SQS-26BMT	412266.0	183.0	21.0	2.0	13917.6	8165.0
CI	SQS-26 BXOP	69818.0	36.0	3.0	0.0	1342.7	549.4
CI	SQS-26CXAR	416569.0	195.0	3.0	1.0	1479.0	1085.7
CI	SQS-26 CXMT	1033348.0	420.0	26.0	14.0	14762.2	11354.2
CI	SQS-54LAVAM	40198.0	10.0	2.0	0.0	1855.3	1593.2
CI	SQS-35MT	169333.0	83.0	12.0	0.0	2113.5	1589.1
CI	SQS-26AXMT	224972.0	97.0	26.0	3.0	5639.7	4066.8
CI	SQS-350PRAS	147157.0	71.0	2.0	3.0	13915.9	10507.9
CI	SQS-53MT	517395.0	234.0	26.0	2.0	956.6	694.5
CI	SQR-17OP	100307.0	40.0	5.0	0.0	13266.6	9858.6
CI	R/T MK-60	15796.0	6.0	3.0	1.0	2893.5	2238.1
CI	SQS-38 MT	340820.0	173.0	13.0	2.0	1822.6	1429.4
CI	SQR-17 MT	11245.0	3.0	10.0	0.0	5910.2	4206.2
CI	SQS-53MTCON	64034.0	17.0	6.0	4.0	8650.1	7339.3
CI	ST A2	4452501.0	2230.0	17.0	54.0	5215.5	4429.0
						7833.7	5738.8

* Student-months

C-SCHOOLS

PAGE- 2

TYPE	SCHOOL	TOTAL CCST	WORK UNITS	SCHOOL LENGTH	TOTAL ATTR	COST PER TOTAL GRADUATE VARIABLE
C1	BQG-4 PUFFS	66854.0	21.0	18.0	1.0	13224.0
C1	SUBSONAR MT	744224.0	340.0	12.0	0.0	6361.6
C1	BQS-8/10/14	77934.0	31.0	3.0	0.0	1740.5
C1	BQQ-5 MT	215046.0	57.0	21.0	1.0	12283.4
C1	BQS11/12/13	2070590.0	940.0	22.0	24.0	11183.3
C1	BQS-11MTCON	49046.0	20.0	12.0	0.0	6791.0
C1	GM-C	2339328.0	1425.0	18.8	26.0	7122.2
C1	FI-C	2947869.0	1329.0	19.9	21.0	11866.3
C1	ET-C	1326117.0	410.0	8.2	38.0	6120.6
C1	IM-C	131958.0	95.0	10.6	9.0	3397.8
C1	OM-C	74474.0	46.0	12.0	1.0	4483.4
C1	INST/LORSHP	1025556.0	713.0	2.0	41.0	863.1
C1	IC-C	2621169.0	2122.0	12.3	65.0	3506.2
C1	EN-C	1455627.0	943.0	8.5	4.0	5027.9
C1	STM LAB	7004136.0	5693.0	3.0	0.0	851.8
C1	MR-C HTM	215634.0	155.0	7.0	4.0	2247.3
C1	MR C 8M	310429.0	143.0	9.0	18.0	4508.7
C1	MR-C TR LTH	114956.0	71.0	3.0	0.0	1120.9
C1	MR-C P G	108624.0	85.0	5.0	1.0	1474.5
C1	MR-C S M	30172.0	23.0	1.0	0.0	302.7
C1	AC & R	944171.0	617.0	8.0	11.0	2825.1
C1	ACER DRYAIR	6480.0	4.0	1.0	21.0	373.8
C1	AC & R-CENT	58606.0	36.0	2.0	0.0	751.4
C1	WELD-NPPO	248024.0	150.0	12.0	0.0	4578.9
C1	WELD-PPHULL	2126563.0	889.0	8.0	5.0	4417.0
C1	WELD-HPPPIE	1181123.0	762.0	10.0	21.0	5577.0
C1	WELD-NPPW	733324.0	464.0	14.0	17.0	5106.1
C1	DIVE SECOND	656623.0	452.0	10.0	5.0	3352.4
C1	DIV SCUBA	241221.0	154.0	4.0	1.0	1449.5
C1	NOT RAD OP	367263.0	185.0	11.8	1.0	5405.9
C1	NOT VMP	249600.0	138.0	8.0	0.0	3339.2
C1	NOT USBI	75089.0	44.0	4.0	0.0	1575.3
C1	NOT RI-N	75323.0	49.0	4.0	0.0	1419.0
C1	NOT RI(C)	11235.0	6.0	4.0	0.0	1728.5
C1	EM-WASH/EXT	72096.0	45.0	2.0	0.0	739.5
C1	EM16MMOPS	50609.0	43.0	1.0	1.0	271.6
C1	EM-16MM MT	138840.0	82.0	2.0	0.0	781.5
C1	EM-4JJHERTZ	81876.0	55.0	6.0	0.0	2061.2
C1	IC-NC2 MD-2	119322.0	43.0	3.0	0.0	3201.9
C1	IC-ORAI/DRT	47112.0	33.0	3.0	0.0	988.4
C1	IC-APS OPR	322711.0	66.0	5.0	0.0	5641.8
C1	IC-ADV SYS	153297.0	30.0	17.0	0.0	20046.7
C1	IC-APS MT	34514.0	27.0	10.0	0.0	2949.9
C1	RM-SHORE CM	1706148.0	314.0	3.0	0.0	3761.7
C1	RM-PRACDECK	1701426.0	1201.0	3.0	0.0	980.8
C1	RM-QUAL CON	207166.0	100.0	2.0	1.0	956.2
C1	RM-COMMSUPV	51457.0	42.0	4.0	2.0	1130.9
C1	RM-TT MOC28	687467.0	357.0	9.0	3.0	3999.5
C1	RM-TTY LLK	57600.0	48.0	3.0	3.0	830.8
C1	RM-MORSE CO	1536141.0	1565.0	12.0	97.0	2718.2

TYPE	SCHOOL	TOTAL CCST	WORK UNITS	SCHOOL LENGTH	TOTAL ATIR	COST PER TOTAL	GRAU-TE VARIABLE
C1	NUC PMR-ENL	10873714.0	5873.0	24.0	343.0	10254.4	5145.8
C1	MARMAR	1127095.0	1353.0	9.8	65.0	1684.0	1449.4
C1	MARAO	194839.0	224.0	4.8	4.0	963.5	740.4
C1	CIC/NTDS	905941.0	174.0	6.0	25.0	7209.1	3654.5
C1	AIC SUPV	55246.0	13.0	3.0	5.0	4942.1	1165.0
C1	AIC REQ/PRO	20403.0	4.0	1.0	2.0	1177.1	591.4
C1	NIDS TRACKR	658837.0	201.0	3.0	1.0	2209.3	1050.1
C1	CIC-TECH8AS	432661.0	105.0	3.4	15.0	3233.1	1670.2
C1	OS C ADV	502440.0	198.0	10.0	6.0	5836.0	1847.5
C1	GP-USQ-20	343477.0	87.0	5.0	4.0	4555.4	2411.6
C1	ASIS-LCC	27331.0	6.0	3.0	0.0	3153.6	1807.3
C1	UYK-7ASIBAS	119744.0	33.0	5.0	0.0	4186.9	2045.0
C1	UYK-20PRUG	75823.0	18.0	5.0	1.0	4850.5	2710.6
C1	CAITC DP UT	57056.0	89.0	4.0	1.0	5922.2	4000.2
C1	A/C & R-C	888480.0	711.0	3.4	43.0	590.5	618.8
C1	ELEC-C	784379.0	487.0	2.1	19.0	780.5	449.2
C1	INST/ADM-C	2725773.0	1563.0	3.3	128.0	1328.1	629.3
C1	S/DA-C	1375093.0	1274.0	3.6	167.0	696.7	561.0
C1	ELECTRON-C	1812274.0	817.0	5.7	24.0	4917.8	1043.6
C1	TTY-C	908935.0	614.0	8.4	18.0	3122.2	1740.1
C1	MU-C	446687.0	321.0	2.0	15.0	7207.1	5790.6
C1	MU-RES	2795.0	2.0	2.0	0.0	645.0	485.5
C1	MU-FLT SUPT	131904.0	100.0	0.0	0.0	0.0	0.0
C1	HP SHPBD	1571372.0	582.0	19.0	19.0	11638.3	10321.0
C1	LP MFU	496837.0	262.0	17.0	12.0	7439.5	6062.1
C1	CRYD OPS	84847.0	19.0	3.0	0.0	3091.6	2892.1
C1	MN-C	47302.0	36.0	1.7	1.0	515.5	316.5
C1	DEGAUSING	40049.0	10.0	5.0	0.0	4621.1	4050.6
C1	EM-SLQ19/26	126344.0	62.0	1.0	1.0	4702.7	3205.0
C1	EM-AN/SPH-2	34474.0	16.0	8.0	0.0	1397.8	2779.6
C1	EM-ANMRL-11	54495.0	26.0	3.0	0.0	3977.8	946.5
C1	ET SHPBD IN	655831.0	546.0	13.0	17.0	3603.5	2580.5
C1	ET SHPBD RD	517221.0	433.0	13.0	3.0	3583.5	2580.5
C1	ET-RAD MT	71417.0	72.0	5.0	0.0	1144.5	735.5
C1	UNREP-R/R	268003.0	237.0	3.0	3.0	782.9	455.6
C1	UNREP-M/H	224084.0	143.0	5.0	1.0	1806.1	1349.3
C1	DENISON CON	160526.0	123.0	6.0	1.0	1811.6	1236.5
C1	UNITED CON	101770.0	63.0	6.0	0.0	2236.7	1602.1
C1	EOD-NAV BAS	853675.0	224.0	24.4	3.0	21459.3	14223.7
C1	EOD-SUR BAS	2619272.0	813.0	13.0	90.0	9665.3	5610.5
C1	EOD-NUC WPS	2053962.0	356.0	7.0	6.0	9330.1	7244.3
C1	EOD-ADV REF	529507.0	153.0	6.4	0.0	5111.4	3213.0
C1	EOD-SUR REF	829653.0	276.0	5.0	0.0	3468.5	1905.6
C1	EOD-FCRN-N	16629.0	7.0	4.0	0.0	2192.9	1000.7
C1	EOD-S/REFOR	133227.0	56.0	6.0	0.0	4392.1	2015.6
C1	EOD-UDTSEAL	59412.0	17.0	3.8	0.0	3064.7	1937.9
C1	EOD BAS DVR	623654.0	166.0	12.0	10.0	10403.9	6845.4
C1	LEGAL RPT	543551.0	266.0	7.0	9.0	3300.9	2615.2
C1	NPPD REACTR	2228349.0	1575.0	26.0	42.0	8489.0	10.5
C1	NPPD ELEC	3579507.0	2530.0	26.0	43.0	8489.0	10.5

TYPE	SCHOOL	TOTAL COST	WORK UNITS	SCHOOL LENGTH	TOTAL ATTR	COST PER TOTAL	GRADUATE VARIABLE
C1	INST-ALFA	1909500.0	1239.0	4.0	21.0	1422.6	1130.0
C1	INST-NAVRES	14562.0	6.0	1.0	0.0	560.1	486.9
C1	INST-SHIPBD	185170.0	109.0	2.0	11.0	784.1	637.8
C1	PI TECH	135547.0	67.0	3.0	0.0	1404.7	1185.3
C1	INTER/CLASS	302995.0	189.0	8.0	2.0	2959.7	2409.5
C1	CAIC	755403.0	419.0	3.0	1.0	1248.2	1041.0
C1	MGMT/SUPV	657481.0	410.0	2.0	7.0	740.1	586.0
C1	DRG AL SPEC	244687.0	118.0	5.0	26.0	2392.7	2007.3
C1	DRG AL ADV	183037.0	109.0	1.0	12.0	387.5	310.4
C1	MS/FH	679620.0	488.0	9.0	11.0	2892.5	2300.8
C1	MS/FP	363880.0	303.0	7.0	2.0	1940.0	1520.4
C1	DP-BAS PRDG	134347.0	95.0	3.0	9.0	979.1	735.4
C1	DP-IBM 360	181847.0	93.0	5.0	21.0	2256.2	1850.0
C1	DP-SYS ANA	63880.0	37.0	5.0	0.0	1992.1	1586.0
C1	DP-EAM WIRE	8072.0	7.0	4.0	0.0	1064.4	759.5
C1	DP-COMP SYS	75492.0	79.0	3.0	0.0	661.6	417.9
C1	DP-SYS DPR	12785.0	11.0	4.0	0.0	1072.9	747.9
C1	DP-PRG ASY	20100.0	15.0	6.0	0.0	1855.4	1308.0
C1	DP-PRG FRIN	10727.0	8.0	4.0	1.0	1237.7	912.8
C1	SK-FIN SYS	5495.0	5.0	1.0	0.0	253.6	184.8
C1	SK-FOOD SER	13301.0	5.0	1.0	0.0	613.9	545.1
C1	SK-SUDPS204	39063.0	35.0	4.0	1.0	1030.2	755.2
C1	SK-SUDAPSEU	113396.0	99.0	3.0	1.0	772.0	565.7
C1	SK-TECHPUBS	2198.0	2.0	1.0	0.0	253.6	164.8
C1	SK-DEP DUTY	27874.0	25.0	5.0	0.0	1286.5	942.7
C1	SH-C BARBER	126131.0	105.0	4.0	15.0	1108.9	863.3
C1	SH-C CLERK	2002.0	17.0	3.0	0.0	814.6	601.4
C1	SH-C LNDRY	47050.0	30.0	2.0	0.0	723.9	601.1
C1	ET-C	3331636.0	783.0	5.9	42.0	5793.3	5105.8
C1	DIV-MASQUAL	119524.0	28.0	5.2	8.0	5122.5	3434.1
C1	DIV 1ST CL	1732576.0	521.0	17.2	6.0	13199.7	7615.0
C1	BU-MILLWRK	43256.0	17.0	9.0	2.0	5284.7	5093.6
C1	BU-TODL/EQT	74473.0	37.0	12.0	0.0	5573.9	5319.1
C1	BU-HVY/CNST	43611.0	17.0	6.0	2.0	3552.1	3424.7
C1	BU RES	35509.0	25.0	2.0	1.0	655.6	613.1
C1	EA-PLN EST	149663.0	94.0	8.0	1.0	2939.4	2769.5
C1	EA RES	29108.0	20.0	2.0	0.0	671.7	629.3
C1	SM-WELD	69168.0	33.0	4.0	1.0	1934.8	1849.9
C1	SM-MT WELD	71342.0	33.0	4.0	0.0	1995.6	1910.7
C1	SM RES	29461.0	20.0	2.0	1.0	679.9	637.4
C1	EO(C)-NH	41895.0	8.0	4.0	0.0	4834.1	4748.2
C1	EO(C)-8/Q	56491.0	19.0	4.0	1.0	2744.5	2658.7
C1	EO(C)-C/S	58502.0	9.0	2.0	0.0	3000.1	2957.2
C1	EO(C)-G/F	67031.0	31.0	6.0	2.0	2994.0	2865.2
C1	EO RES	39726.0	26.0	2.0	4.0	705.2	662.3
C1	CH(C)-S/S	54098.0	30.0	4.0	0.0	1664.6	1578.7
C1	CH RES	35852.0	25.0	2.0	1.0	661.9	619.0
C1	CE RES	27305.0	23.0	2.0	3.0	630.1	587.7
C1	UT(C)-S/B	71427.0	48.0	7.0	0.0	2403.8	2255.2
C1	UT RES	20835.0	15.0	2.0	2.0	641.1	598.6

TYPE	SCHOOL	TOTAL COST	WORK UNITS	SCHOOL LENGTH	TOTAL ATTR	COST PER TOTAL	COST PER GRADUATE VARIABLE
C1	NPPD MECH	5533669.0	3893.3	26.0	59.3	8489.3	13.9
C1	NPPD LAB	684775.0	484.0	13.0	0.0	4244.5	5.5
C1	NPPD REACTR	1582807.0	811.0	26.0	31.0	11710.1	10.0
C1	NPPD ELEC	2176116.0	1115.3	26.0	51.0	11710.1	10.0
C1	NPPD MECH	4221470.0	2163.0	26.0	115.0	11710.1	10.0
C1	NPPD LAB	655762.0	336.0	13.0	0.0	5855.1	5.0
C1	NPPD REACTR	532315.0	211.0	26.0	1.0	15128.5	4076.4
C1	NPPD ELEC	669346.0	259.0	26.0	6.0	15506.2	4454.1
C1	NPPD MECH	1252787.3	491.3	26.0	6.0	15339.1	4257.0
C1	NPPD LAB	80370.0	31.0	13.0	0.0	7777.8	2251.8
C1	NUC PHR-E	6405342.0	7672.0	24.0	416.0	4624.1	4064.7
C1	RMTE SEN OP	129311.0	35.3	3.0	0.0	2557.8	1212.7
C1	ASLT BT COX	490191.0	176.0	3.0	8.0	1928.2	1231.7
C1	L/C ENGOVHL	145655.0	58.0	3.0	0.0	1738.6	1099.6
C1	SH FIRE CON	380804.0	150.0	6.4	1.0	234.3	146.1
C1	BUDS-E	2169034.0	699.0	23.2	92.0	16613.4	7959.0
C1	SCUBA-SPEC	232337.3	73.0	10.0	19.0	7335.3	3622.2
C1	ASSL BT COX	143587.0	51.0	3.0	6.0	1549.2	541.0
C1	ASSL BT O/M	121053.0	86.0	3.0	7.0	974.5	568.8
C1	SH FIRE CON	76573.0	43.3	3.4	8.0	1404.5	685.8
C1	ICR COL DU	14111.0	8.0	2.0	1.0	814.1	607.3
C1	CTO-TACSOM	204946.0	102.0	12.0	1.0	5564.2	3476.2
C1	AVCC	478494.0	241.0	4.0	11.0	1832.7	1662.9
C1	BEQ MGT	742799.0	148.0	3.0	1.0	3474.7	3223.6
C1	DAC-C	368357.0	203.0	5.8	2.0	2428.7	1839.8
C1	INST BAS	767320.0	452.0	4.0	2.0	1567.0	1125.8
C1	PI TECH	143473.0	96.0	2.6	0.0	896.7	609.9
C1	CATC-C1	215535.3	103.3	6.3	0.0	2984.4	2182.7
C1	CPN-4	1331610.0	50.0	4.4	1.0	27042.1	26420.7
C1	FPN-36	133474.0	15.0	3.0	0.0	6160.4	5750.7
C1	TPX-42	757581.0	212.0	11.0	4.0	9076.0	7522.5
C1	SPN-6	3760.0	2.0	0.0	0.0	0.0	0.0
C1	SPN-35	41673.0	23.3	9.0	0.0	3762.9	2198.9
C1	SPN-41	44159.0	21.0	7.0	0.0	3396.9	2180.5
C1	SPN-42	90783.0	45.0	15.0	0.0	6983.4	4376.6
C1	SPN-43	32926.0	14.0	6.0	0.0	3256.4	2213.8
C1	SPN-44	32599.0	16.0	3.0	0.0	1427.9	906.5
C1	MATCUNAVAD	139249.0	60.0	8.0	1.0	4284.6	3104.9
C1	MATCURAD	177188.0	61.0	8.0	2.0	5362.6	4182.9
C1	MATCUMH	48778.0	22.0	3.0	0.0	1535.0	1392.6
C1	MATCCQM-R	135457.3	72.3	8.3	0.0	3473.3	2293.6
C1	MATC RADAR	71596.0	18.0	33.4	0.0	30658.0	25752.8
C1	MATC COMM-T	87559.0	51.0	29.0	0.0	11489.7	7213.3
C1	MATCAIDS-T	46526.0	26.0	27.4	0.0	11412.3	7371.8
C1	MOGEM C	307119.0	123.0	17.2	0.0	9910.9	8410.5
C1	RAUSET C	173244.0	98.0	4.6	0.0	1876.6	1475.3
C1	OLS C	124723.0	13.0	6.0	0.0	13284.2	12720.7
C1	CATL C	121645.0	18.0	2.0	0.0	3119.1	2931.3
C1	ALML PAC	219556.3	69.3	2.0	0.0	1460.6	1400.0
C1	BT-HAGAN	131992.0	66.0	7.0	9.0	3230.6	2455.2

TYPE	SCHCOL	TOTAL CCST	WORK UNITS	SCHOOL LENGTH	TOTAL ATTR	COST PER TOTAL	COST PER VARIABLE
C1	BT-BAILEY	103930.0	49.0	7.0	7.0	3426.3	2650.9
C1	BT-GEN REG	153363.0	74.0	6.0	4.0	2869.6	2205.0
C1	BT-PRES FIR	279595.0	123.0	6.0	2.0	3147.4	2462.8
C1	PREC PHY ME	43157.0	44.0	6.9	0.0	1561.8	722.7
C1	MAA TRA	104071.0	165.0	5.0	0.0	727.8	727.8
C1	ESMHLR-60P	1161920.0	15.0	4.0	0.0	71503.3	75456.4
C1	ESM MAINT	1291701.0	60.0	16.0	0.0	79489.9	75302.8
C1	SNR SUB ANL	447284.0	51.0	4.0	1.0	8095.7	746.9
C1	RAOSUB EQT	158098.0	23.0	16.0	3.0	29187.5	25705.7
C1	TTY UGC-20	72246.0	34.0	5.0	4.0	2451.8	1363.7
C1	AUX E TECH	530223.0	219.0	12.0	12.0	5587.2	3757.2
C1	GENTEC-6L16	1030689.0	6.0	3.0	0.0	118526.6	118377.5
C1	GENOPR-6L16	1058459.0	23.0	3.0	3.0	51850.2	31311.2
C1	GENMEC-7L16	118520.0	58.0	6.0	2.0	2829.4	1751.4
C1	GENELE-7L16	39535.0	3.0	1.0	0.0	3071.9	2888.9
C1	ENG DIESEL	107824.0	42.0	5.0	0.0	2962.2	2347.2
C1	DIVER SCU8A	317000.0	99.0	4.4	15.0	3251.3	2216.6
C1	DIVER 2ND	224734.0	89.0	10.8	15.0	6293.4	3755.7
C1	MM MAINT	205811.0	152.0	5.0	1.0	1562.3	1537.5
C1	BT-60JPSMT	129533.0	93.0	9.0	2.0	2892.8	1947.8
C1	8CILFEEO TE	127881.0	85.0	1.0	2.0	347.2	242.2
C1	BT120JPSMT	169558.0	116.0	7.0	3.0	2366.8	1651.8
C1	STM PLT MT	142574.0	106.0	5.0	0.0	1546.5	1021.5
C1	BT-GEN REG	17376.0	10.0	3.0	0.0	1203.0	888.0
C1	BT-HAGAN	20091.0	12.0	3.0	0.0	1159.1	844.1
C1	BT-BAILEY	6230.0	4.0	3.0	0.0	1078.3	763.5
C1	BASIC CARGO	44277.0	17.0	1.5	0.0	901.6	750.5
C1	ELEC MECH-A	276014.0	88.0	6.0	4.0	4342.9	3861.1
C1	SEC TTY-8	922977.0	585.0	7.3	6.0	2657.9	2071.7
C1	SEC FAX-C	1316831.0	937.0	7.5	19.0	2445.8	1859.6
C1	SEC VOICE-0	815475.0	526.0	8.2	3.0	2933.7	2275.2
C1	SEC DATA-E	386790.0	139.0	8.7	5.0	5586.8	4885.1
C1	TALOS	1285521.0	463.0	19.6	3.0	12558.4	11063.9
C1	TARTAR	1446322.0	506.0	17.4	2.0	11477.4	10168.4
C1	TERRIER	1142763.0	298.0	20.4	0.0	18053.1	16516.4
C1	3 COGRO RAD	936505.0	273.0	51.0	0.0	24540.9	22208.7
C1	TAC DATA SY	4162576.0	2206.0	15.3	14.0	6662.4	5511.3
C1	BAS PT OEF	337323.0	182.0	12.8	0.0	5474.8	4511.8
C1	NAVAID TECH	38547.0	7.0	3.0	0.0	3851.9	9.6
C1	SINSTECHMK2	66670.0	12.0	9.0	0.0	11539.1	12.1
C1	IMP NAVIG	155564.0	28.0	2.0	0.0	2564.3	2.7
C1	TTY-UGC2025	112779.0	57.0	5.0	6.0	2283.0	-1.6
C1	RAOIOVERCIN	93254.0	47.0	6.0	0.0	2747.3	5.7
C1	SNR SUBJANL	140028.0	74.0	5.0	8.0	2183.4	7.2
C1	AUXSSN/SS8N	655444.0	393.0	9.0	17.0	3463.9	20.3
C1	WELONPHR	6279.0	1.0	2.0	0.0	2898.0	2132.6
C1	OXY GEN EL	81305.0	39.0	2.0	4.0	962.2	1.7
C1	OXYGENMECH	104755.0	46.0	4.0	6.0	2102.1	181.2
C1	ELEC HOV	59456.0	28.0	2.0	8.0	980.1	19.6
C1	COMPUTER TR	2181188.0	252.0	14.2	5.0	28363.6	27206.9

TYPE	SCHOOL	TOTAL COST	WORK UNITS	SCHOOL LENGTH	TOTAL ATTR	COST PER GRADUATE TOTAL	VARIABLE
CI	SINS TRA	419061.0	681.0	27.0	13.0	38337.0	36137.5
CI	NAVIG AIDS	448383.0	820.0	16.4	6.0	20695.4	19359.5
CI	TENDER TRA	446750.0	25.0	11.0	0.0	45362.6	44466.6
CI	NAVDAC TRA	565741.0	26.0	12.4	1.0	62265.4	61255.3
CI	WEAPS TRA	3139799.0	266.0	24.8	0.0	67554.3	65259.3
CI	WEAPS FTB	5179642.0	864.0	20.6	9.0	28499.3	26593.0
CI	WEAPS HP	4729161.0	1021.0	17.3	34.0	18492.1	16891.1
CI	WEAPS TM	4495661.0	641.0	2.0	1.0	3237.0	3051.9
CI	TARTAR-SMS	4043627.0	758.0	17.2	9.0	21174.4	20134.5
CI	TERR-SMS	4186448.0	727.0	21.9	4.0	29132.9	27778.8
CI	COMM SYS	462027.0	251.0	12.0	0.0	5097.5	4352.6
CI	FLTCMMOPER	89397.0	76.0	2.0	0.0	542.9	418.7
CI	TM-SUBRK 28	192675.0	20.0	12.0	0.0	26678.3	21823.8
CI	TM-ASROC IM	49052.0	9.0	4.0	0.0	5031.0	3412.8
CI	TM-MK 14-16	208239.0	69.0	14.0	2.0	9750.4	4080.8
CI	TM-MK37	489228.0	141.0	14.0	0.0	11209.9	5546.3
CI	TM-MK 44	121071.0	34.0	8.0	0.0	6574.0	3337.7
CI	TM-MK 45	164754.0	41.0	10.0	0.0	9273.3	5227.9
CI	TM-CCDLMK46	277042.0	44.0	10.4	0.0	15111.5	10904.3
CI	TM-MK 48	943058.0	138.0	12.0	1.0	18924.4	14069.9
CI	TM-TT ADV	299246.0	91.0	16.0	6.0	12141.9	5669.3
CI	BU-C	781148.0	611.0	6.6	4.0	1947.2	1338.0
CI	SW-C	187615.0	121.0	6.0	1.0	2146.9	1273.2
CI	CE-C	361710.0	310.0	11.0	0.0	2961.9	2269.2
CI	SO-C A/P	127538.0	56.0	7.0	0.0	3679.0	3008.6
CI	CM-C	129231.0	93.0	6.9	1.0	2212.7	1750.9
CI	PH-MOPIC	215762.0	116.0	9.0	1.0	3863.1	2307.5
CI	PH-PHER	185624.0	107.0	12.4	4.0	4964.2	2820.9
CI	PH-PHES	6005.0	3.0	9.0	1.0	4157.3	2601.7

Appendix D
USERS' GUIDE FOR ACAS

Appendix D
USERS' GUIDE FOR ACAS

The Attrition Cost Analysis System (ACAS) has been designed for easy use by non-technical personnel. This guide will assist the user in preparing and executing the model. The input deck for a run will consist of (1) the Job Control Language (JCL) for the users' installation, (2) the program deck, and (3) the user inputs.

JCL. The Job Control Language differs from installation to installation; however, once this part of the deck is set up it will not be changed.

The program. The card deck for the program will be an object deck for efficient processing. This deck, too, will not change from run to run.

User inputs. The user inputs will detail to the model (1) the group(s) under consideration, (2) the output requests, and (3) any data modifications required for the run. This guide will focus on these user inputs, their preparation, their deck placements, and their options.

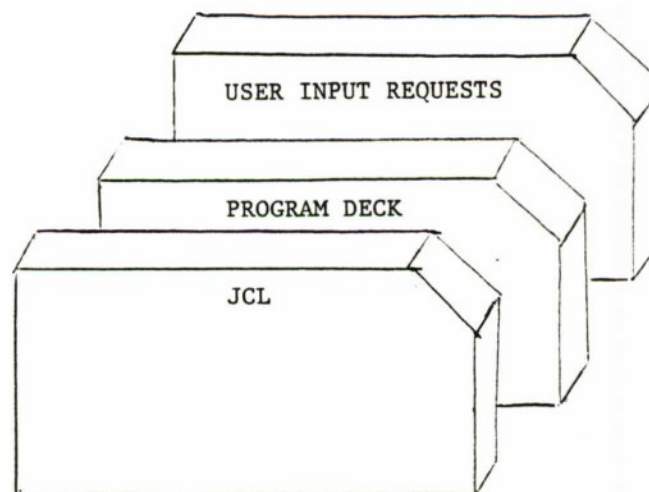


Fig. D.1—Deck Arrangement

INPUT CARD FORMATS

Four types of cards are used in the input deck. The function and layout of each of these will be explained individually.

The Title Card

This card permits the user to specify a title up to 80 characters. The title will appear on all output from the run and will serve to identify the outputs should they get separated.

The Divider Cards

The model requires input in three areas and these cards serve to group the input properly. They are:

GROUP DATA SPECIFICATIONS

OUTPUT REQUESTS

DATA MODIFICATIONS

Each of these cards alerts the model of the type of input to expect and routes the data accordingly.

Keyword Cards

The format of these cards will be a keyword in columns 1-20, and a value for that keyword beginning in column 21. E.g. For any of the available values, a maximum of four characters must be included. The rest of the value may be added or deleted at the user's discretion. Thus, the value PAY&ALLOWANCES may be written as

PAY&

PAY&A

PAY&AL

.

.

.

PAY&ALLOWANCES

This will be indicated in any table of values as XXXX[YYY....Y] with XXXX required and YYY....Y optional. E.g.

PAY&[ALLOWANCES]

FORMAT:

1	21
SEX	MALE
SURVIVAL FUNCTION	GRAPH
UTILITY FUNCTION	NEW

In preparing this type of card deck, the user must be careful to follow the format specifications exactly. Any misspelling or improper spaces will cause the job to abort after printing an error message explaining the reason for the termination. Annex 1 will list these error messages and explain their probable causes. The keywords must be spelled precisely as they appear in the instructions. All values must begin in column 21 and must also be spelled (or abbreviated) exactly as they appear in the documentation. If more than one value of a keyword is desired, a comma is placed after the first value then the second value is given. (No space is permitted after the comma.) A blank in any value field terminates the field. All of the values will be tested and any improper values will be rejected with an explanatory message.

Data Input Cards

Any data inputs which require more than a single value are placed on data input cards. These cards immediately follow the keyword card which describes them. The data begins in column 1 and continues across the card. No blanks are to be included and values are to be separated by commas. If continuation cards are required, a + replaces the comma after the last value on the card. This will cause the next card to be read and processed. There is no limit on the number of continuation cards which can be used. A value may not be continued onto the next card. The data will be stored as read. The values 400, 400., and 400.00 would all be interpreted the same. Any number of decimal places may be specified, subject only to the limitations of the computer itself.

SELECTING AN INPUT GROUP

Required Input

The user must specify four variables to the model. These are required because of the way the data base was prepared. The four variables are: sex, education level, mental group, and term of enlistment. For these variables, only one value may be specified.

Sex. This control card need not be included, however, the model will assume male data is requested if it is missing. (Male and female data are not compatible so no results are possible for service totals.)

FORMAT:

1	21
SEX	MALE
SEX	FEMALE

Education level. Two options are available in specifying education level — high school graduate (diploma and GED) and non-high school graduates.

FORMAT:

1	21
EDUCATION LEVEL	HSG
EDUCATION LEVEL	NHSG

Mental group. The categories have been grouped for analysis into I-IIIA, IIIB, and IV. For women this card is not included. The value for women will default to I-IIIA. If this card is included in a female run, a warning message is produced and the card is ignored.

FORMAT:

1	21
MENTAL GROUP	I-III A
MENTAL GROUP	III B
MENTAL GROUP	IV

Term of enlistment. Two-year enlistments have not been included in the data available values are 3 years, or 4 or more years. Again, for any of the required inputs only one value may be specified.

FORMAT:

1	21
TERM OF ENLISTMENT	3 YR
TERM OF ENLISTMENT	4 YR

Optional Specifications

For the optional specification other than A school, the default if the option is not selected will be to include all values of that parameter.

A school. *,** This card permits the user to request results for individuals who have (have not) attended an A school. The default, if this card is omitted, is determined by the education level specified. It will be assumed that high school graduates attend an A school and non-high school graduates do not. For females, the default will always be used.

FORMAT:

1	21
A SCHOOL	YES
A SCHOOL	NO

* Navy option only. For the Marine Corps it will be assumed that everyone attends a formal school.

** Option available only for males.

Age at entry. Three values are possible for this parameter: 17 or less, 18, 19 or more. Combinations may also be requested for this value.

FORMAT:

1	21
AGE AT ENTRY	17
AGE AT ENTRY	17,19

Bonus.* This option determines if the individuals received an enlistment bonus.

FORMAT:

1	21
BCNUS	YES
BONUS	NO

Entry era. Two subgroups are available. PRE-FY1976-accessions prior to 7/1/75 and POST-FY1976-accessions on or after 7/1/75. Since the final date of available data was 6/30/76, the second era contains only 12 months of data.

FORMAT:

1	21
ENTRY ERA	PRE-FY76
ENTRY ERA	POST-FY76

* Option available only for males.

Loss type. There are six values for this keyword. Any combination of the values may be specified or the word ALL may be specified. The values are:

- EAOS - includes EAOS and all other favorable losses
- DFMC - dropped from military control
- UNFI[T]-includes unfitness and unsuitability
- MISC[ONDUCT]
- TRAI[NEE]* - voluntary trainee discharge program
- OTHE[R] includes all other unfavorable

FORMAT:

1	21
LOSS TYPE	DFMC
LOSS TYPE	DFMC,UNFIT,MISCONDUCT

Number of dependents at entry.** Two values are available — none or 1 or more.

FORMAT:

1	21
N OF DEPENDENTS	NONE
N OF DEPENDENTS	1-OR-MORE

Note: The dashes connecting 1-or-more are required so the model will not find a space and terminate before the entire value is read.

* Available for future use.

** Option only available for males.

Rating/community.* The values for this keyword include any valid Navy rating (see Table D.1) or any of the Navy or Marine Corps communities.

<u>Navy communities</u>	<u>Marine Corps communities</u>
• AVIA[TION]	• AVIA[TION]
• ENGI[NEER/DECK/HULL]	• GROU[ND SUPPORT]
• TECH[NICAL]	• COMB[AT]
• SUPP[LY/ADMINISTRATION/MEDICAL]	• OTHE[R]
• OTHE[R]	

For this keyword only one rating or one community may be specified. The default if none is specified will be all Navy or all Marine Corps. If results for a particular Marine Corps MOS are desired, the average course length and the average cost for the formal school must be input by the user. These values are available in Tables 4-12 through 4-15.

FORMAT:

1	21
RATING/COMMUNITY	AB
RATING/COMMUNITY	AVIATION

REQUESTING OUTPUT DATA

At least one item of output must be requested or the run will terminate. There is no default value. Since many different outputs are available, the user must decide which of these best fit his needs and prepare the corresponding request cards.

Options

Survival function. The survival function may be presented as a table or a graph, or both.

FORMAT:

1	21
SURVIVAL FUNCTION	TABLE
SURVIVAL FUNCTION	TABLE, GRAPH

* Option only available for males.

Table D.1

NAVY RATINGS AND ASSOCIATED DATA

RATING	DOD OCC	COMM CODE	A SCH CST	COURSE LENGTH		RATING	DOD OCC	COMM CODE	A SCH CST	COURSE LENGTH
AB	6700	680	AVIA	2369	6.0	GM	0600	633	ENGI	3017 11.4
ABE	6704	680	AVIA	4458	7.6	GMG	0604	041	ENGI	3017 11.4
ABF	6705	680	AVIA	1730	5.0	GMM	0601	633	ENGI	3017 11.4
ABH	6706	680	AVIA	1759	4.6	GMT	0602	644	ENGI	3017 11.4
AC	6600	222	AVIA	5351	14.0	GS	4400	652	ENGI	
AD	6200	601	AVIA			HM	8000	300	SUPP	
ADJ	6206	601	AVIA	1966	7.0	HT	4300	790	ENGI	941 4.0
ADR	6205	601	AVIA	2151	6.7	IC	4200	623	ENGI	2356 9.0
AE	6800	602	AVIA	3129	11.0	IM	1100	670	TECH	4956 17.0
AG	7100	420	AVIA	5272	15.0	IS	2300	243	SUPP	2518 11.1
AK	7300	551	AVIA	1617	6.8	JO	2600	570	SUPP	
ALL			ALLN	2124	9.2	LI	3100	740	TECH	
AM	6900	603	AVIA			LN	1750	512	SUPP	
AME	6903	602	AVIA	2522	8.8	MA	0150	061	TECH	
AMH	6902	602	AVIA	1971	6.8	ML	4700	790	ENGI	
AMS	6901	603	AVIA	2355	8.6	MM	3700	651	ENGI	
AQ	6500	646	AVIA	2497	9.0	MN	0900	647	ENGI	4527 14.0
AQ	6520	104	AVIA	4192	14.8	MR	3900	702	ENGI	2662 11.4
AS	7500	602	AVIA			MS	2200	800	SUPP	1755 8.0
ASE	7501	602	AVIA	3295	9.2	MT	0810	121	TECH	
ASH	7502	602	AVIA	3464	9.5	MU	3300	450	OTHE	5597 24.0
ASM	7503	602	AVIA	3392	9.5	NC	1400	500	SUPP	
AT	6300	100	AVIA	4192	14.8	OM	1200	670	SUPP	4496 17.
AVI			AVIA	3021	10.0	OS	0300	061	TECH	3791 14.0
AW	6400	210	AVIA	3473	11.8	OT	0450	210	TECH	
AX	6310	102	AVIA	4192	14.8	OTH			OTHE	2646 12.6
AZ	7400	516	AVIA	1541	7.0	PC	2700	515	SUPP	1117 5.0
BM	0100	060	ENGI			PH	7600	400	TECH	3741 11.0
BT	4000	651	ENGI	1547	3.0	PM	4600	790	ENGI	
BTR	4020	651	ENGI			PN	1800	500	SUPP	2108 7.1
BU	5600	710	OTHE	2000	9.4	PR	7000	602	AVIA	3211 11.0
CE	5300	721	OTHE	2270	8.4	QM	0200	061	TECH	2472 6.0
CM	5500	612	OTHE	2931	13.6	RM	1500	201	SUPP	2962 14.0
CTA	1622	510	SUPP	2543	8.1	SH	2490	823	SUPP	869 4.0
CTI	1666	232	SUPP			SK	2000	551	SUPP	1588 7.1
CTM	1633	102	SUPP	4309	12.0	SM	0250	061	TECH	2048 6.0
CTO	1644	580	SUPP	5312	16.8	ST	0400	130	TECH	
CTR	1655	231	SUPP	2675	9.0	STG	0401	130	TECH	2569 6.0
CTT	1611	231	SUPP	2479	8.8	STS	0404	130	TECH	6547 15.0
DK	2100	542	SUPP	2535	12.0	SUP			SUPP	2355 13.4
DM	3200	414	TECH			SW	5700	711	OTHE	2162 8.8
DP	1900	531	SUPP	2424	8.0	TD	7200	191	AVIA	3517 7.2
DS	1010	150	TECH	7321	26.0	TEC			TECH	1943 6.2
DT	8300	330	AVIA			TM	0500	123	TECH	4373 8.0
EA	5100	412	OTHE	2908	12.2	UT	5800	720	OTHE	3146 12.6
EM	4100	662	ENGI	2281	9.3	YN	1700	510	SUPP	1895 7.0
EN	3800	652	ENGI	4557	3.0					
ENG			ENGI	5277	8.2					
EO	5410	730	OTHE	2813	8.7					
ET	1000	100	TECH	1813	5.7					
ETN	1001	100	TECH	1813	5.7					
ETR	1002	100	TECH	1813	5.7					
EW	0350	230	ENGI	5566	21.0					
FT	0800	121	ENGI	4164	13.3					
FTB	0803	121	ENGI	4164	13.3					
FTG	0801	113	ENGI	4164	13.3					
FTM	0802	121	ENGI	4164	13.3					

Loss rates. A request for loss rates will cause two tables to be printed. The first table will present the monthly loss rates by type. The second table will present weighted loss counts by type.

FORMAT:

1	21
LOSS RATES	ALL

Utility function. These data may also be presented as a table or a graph, or both.

FORMAT:

1	21
UTILITY FUNCTION	GRAPH
UTILITY FUNCTION	TABLE, GRAPH

Cost, utility measures. This keyword will produce a table of cost effectiveness measures, a table of the benefit/cost path, and a graph of the benefit/cost measures.

FORMAT:

1	21
COST, UTILITY MEAS.	

Average grade by month. This request produces a table of the average pay grade by month for the first 48 months of service.

FORMAT:

1	21
AVERAGE GRADE	

Cost function. This type of output can be presented in many ways. First the user must specify which type of cost data he wishes to receive.

- RECRU[ITING]
- TRAI[NING]
- PAY&[ALLOWANCES]
- TRAV[EL]
- CORR[ECTIONS]
- MEDI[CAL]
- OTHE[R]
- TOTA[L]

or • ALL

The user may request the results as a table or a graph. The graph may contain only three types of cost data. If table or graph is not specified, the results will be presented in tabular form. The user must also specify if costs are monthly or cumulative. The order of these requests is monthly/cumulative, type, table/graph. Only one cost request per card is permitted. Only three types of cost data can be graphed in a single run. If more than three types of cost data are requested as graphs, only the first three will be graphed.

FORMAT:

1	21
COST FUNCTION	CUMULATIVE,ALL
COST FUNCTION	MONTHLY,TRAVEL,GRAPH
COST FUNCTION	CUMULATIVE,TOTAL,TABLE

DATA MODIFICATION REQUESTS

For any of the data modifications requiring numeric input, the values will be read free form. These values should be input as the user would normally write them, e.g., 400,7.5,63.,etc. A value may not continue onto a continuation card and the maximum (and minimum) values are limited only by the constraints of the computer itself.

Required Input

Utility function. The type of utility function to be used must be specified in the input data. Four options are available (see Chaps. 3, 6).

- U=1
- COST
- LEARNING CURVES
- NEW

If the last option is chosen, the user must input 16 values on data input cards. These values indicate utility at 3-month intervals beginning with the 3rd month. The values x must be chosen so that

$$0 \leq x \leq 1$$

FORMAT:

1	21
UTILITY	COST
UTILITY	LEARNING CURVES
UTILITY	U=1
UTILITY	NEW
.05,.10,.15,.20,.25,.30+	
.35,.40,.45,.50,.55+	
.60,.65,.70,.75,.80	

The last four cards would result in a 48-month utility vector with values 0,.025,.05,.067,.084,.10,.117,.134,.15,...,.75,.767,.784,.80.

Optional Inputs

Loss rates. Any or all of the loss rates may be increased or decreased by a percentage. If more than one loss type is specified per card, a comma must separate the types (no spaces). If several changes are desired, include one card per change.

FORMAT:

1	21
LCSS RATES	20% INCREASE MISCONDUCT, UNFIT
LCSS RATES	10% DECREASE ALL

Survival function. The user may input a new survival function. This card must be followed by data input cards containing 16 values of x with

$$0 \leq x \leq 1$$

FORMAT:

1	21
SURVIVAL FUNCTION NEW	

Cost data modifications

- Corrections, apprenticeship, basic training, recruiting cost, discount rate. These cost modifications are presented as single value inputs the card requires the keyword cost data, the type of data followed by a colon then the value.

FORMAT:

1	21
COST DATA	CORRECTIONS:500
COST DATA	RECRUITING COST:2000

- BAS, BAQ, clothing allowance, incentive pays, travel costs, medical and other costs.
All of these cost items require a value for each grade (1-5). These values are placed on a data input card(s) behind the modification request.

FORMAT:

1	21
COST DATA	BAS
CCST DATA	BAQ
COST DATA	CLOTHING

- Base pay. Eleven values are required for the base pay input. The values are for E1, E2, E3 (TIS < 2 yrs), E3 (2 yrs ≤ TIS < 3 yrs), E3 (3 yrs ≤ TIS < 4 yrs), E4 (TIS < 2 yrs), E4 (2 yrs ≤ TIS < 3 yrs), E4 (3 yrs ≤ TIS < 4 yrs), E5 (TIS < 2 yrs), E5 (2 yrs ≤ TIS < 3 yrs), E5 (3 yrs ≤ TIS < 4 yrs).

FORMAT:

1	21
<hr/>	
COST DATA	BASE PAY

- User supplied input cost

This cost can be directed to a specific month or can be specified for 48 months (month 1 is actually time 0).

- a particular month

FORMAT:

1	21
<hr/>	
COST DATA	OTHER, 4:2000

This card would insert a value of 2000 in the 4th month of the cost array.

- new cost for all months

FORMAT:

1	21
<hr/>	
COST DATA	OTHER

- Average grade data

To insert a new average grade table, the user must specify 16 values. The first value will be for the 3rd month and the remaining values are at 3-month intervals.

FORMAT:

1	21
<hr/>	
COST DATA	AVERAGE GRADE

ORDER OF THE INPUT DECK

1. Title Card
2. Group Data Specifications
all group keyword cards
(order is not important)
3. Output Requests
all output request keyword cards
(order is not important)
4. Data Modifications
all data modification keyword cards
- any card requiring more than one
value for input must be followed by
the associated data cards

Example 1:

HSG,FEMALES,4YR TERM

GROUP DATA SPECIFICATIONS

SEX	FEMALE
EDUCATION LEVEL	HSG
TERM OF ENLISTMENT	4 YR

OUTPUT REQUESTS

LCSS RATES	
SURVIVAL FUNCTION	TABLE,GRAPH
CCST,UTILITY MEAS	
UTILITY FUNCTION	TABLE,GRAPH
CCST DATA	CUMULATIVE,TOTAL,TABLE
COST DATA	CUMULATIVE,TOTAL,GRAPH
COST DATA	MONTHLY,TOTAL,GRAPH
CCST DATA	MONTHLY,TOTAL,TABLE

DATA MODIFICATIONS

UTILITY	LEARNING CURVES
CCST DATA	CORRECTIONS:900.
CCST DATA	BAS
400.,400.,400.,400.,400.	
CCST DATA	AVERAGE GRADE
1.00,1.21,1.24,1.25,1.50,2.41,2.50,2.60+	
2.70,2.80,2.90,3.00,3.20,3.40,3.60,4.00	

Example 2:

HSG,I-IIIA,MALE,4YR TERM,ALL NAVY

GROUP DATA SPECIFICATIONS

EDUCATION LEVEL HSG
MENTAL GROUP I-IIIA
TERM OF ENLISTMENT 4 YR

OUTPUT REQUESTS

SURVIVAL FUNCTION TABLE,GRAPH
COST,UTILITY MEAS

DATA MODIFICATIONS

UTILITY U=1
COST DATA BAQ
500.,500.,500.,500.,500.
COST DATA BASE PAY
491.,672.,963.,444.,678.+
971.,842.,621.,721.,785.,789.

Example 3:

HSG,I-IIIA,MALES,4YS

GROUP DATA SPECIFICATIONS

EDUCATION LEVEL HSG
MENTAL GROUP I-IIIA
SEX MALE
TERM OF ENLISTMENT 4 YR

OUTPUT REQUESTS

LCSS RATES
SURVIVAL FUNCTION TABLE,GRAPH
COST,UTILITY MEAS
UTILITY FUNCTION TABLE,GRAPH
COST DATA CUMULATIVE,TOTAL,TABLE
COST DATA CUMULATIVE,TOTAL,GRAPH
COST DATA MONTHLY,TOTAL,GRAPH
COST DATA MONTHLY,TOTAL,TABLE

DATA MODIFICATIONS

UTILITY LEARNING CURVES

ACAS requires four files. The content of those files is detailed below.

INPUT DATA FILES

File 9

This file contains the weighted loss counts for male enlistees. It is a random access file with 2880 records.

File 10

This file contains the same information as File 9 but for the female accessions.

File 12

This file contains 1 record for each rating community. It includes the rating, the associated community, the A school cost and the course length.

File 13

This is the average grade file. It contains the average grade by month of service, by race, education level, mental group, and community.

Annex D-1

ERROR MESSAGES AND THEIR PROBABLE CAUSES

DUPLICATE KEYWORD-RECORD FOLLOWS

XX

For any keyword with multiple values, all values must be specified on one card.

ERROR--END OF FILE BEFORE INPUT DATA COMPLETE
RUN TERMINATED

There are too few values on the final data card.

ERROR--END OF FILE REACHED BEFORE ALL RATINGS READ

There is a problem with the rating/cost file. Too few records were found.

ERROR--END OF FILE REACHED BEFORE END OF AVERAGE GRADE ARRAY

There is a problem with the average grade file. Too few records were found.

ERROR--EXPECTED VALUE NOT FOUND AND NO CONTINUATION INDICATED

Data input card contains too few values.

ERROR--FIRST COST VALUE MUST BE CUMULATIVE OR MONTHLY.
RECORD FOLLOWS

XX

There is an error in the first cost field. If cumulative or monthly is specified, check for spelling errors.

ERROR--EXPECTED VALUE NOT FOUND
RECORD FOLLOWS

XX

Check the input for two consecutive commas, or a comma and a '+'. For single value cost items, there may not be any spaces between the colon and the value.

ERROR--FIRST DESCRIPTOR CARD MUST BE GROUP DATA SPECIFICATIONS

There is no group divider card; there is no title card; there is a misspelling on the divider card; there is a spacing error on the divider card.

ERROR--KEYWORD XXXXXXXXXXXXXXXXXXXX ILLEGAL FOR FEMALE RUN
KEYWORD IGNORED--PROCESSING CONTINUES

The female data are not as detailed as the male data, therefore some of the group data specifications are valid only for males (see Chapter 6).

ERROR--ILLEGAL CHARACTER IN NUMERIC FIELD

RECORD FOLLOWS

XX

The asterisks will indicate the point at which the problem occurred.

ERROR--ILLEGAL VALUE FOR TYPE OF COST DATA

RECORD FOLLOWS

XX

The type of cost data specified does not match a type in the list.
Check for misspelling and spaces.

ERROR--LENGTH OF INPUT CARD NOT 80

This is a probable read error. Resubmit the job.

ERROR IN THIRD COST FIELD

RECORD FOLLOWS

XX

This field should contain either table or graph.

ERROR--IMPROPER VALUE FIELD 2 COST CARD

RECORD FOLLOWS

XX

Improper cost type specified. Check for spaces and spelling.

ERROR IN LENGTH OF INPUT FILE

Probable read problem. Resubmit.

ERROR--INCOMPLETE SPECIFICATIONS ON REQUEST FOR COST OUTPUT

RECORD FOLLOWS

XX

Cost data requests must specify cumulative or monthly and the
type of data required (see Chapter 6).

ERROR--INVALID KEYWORD ON UTILITY DATA SPECIFICATION-CARD FOLLOWS

XX

The value field on the utility card is missing, is misspelled, or
contains spaces.

ERROR--INCREASE OR DECREASE MUST BE SPECIFIED FOR LOSS RATE MODIFICATION

XX

The value field is missing or misspelled.

ERROR--NO UTILITY FUNCTION REQUESTED

The card is missing or contains an error in spelling or spacing so
that it cannot be recognized.

ERROR NO VALUE FOR EDUC LEV SPECIFIED

MENT CAT

ENL TERM

All of the above must be specified for a male run; a female run
requires the first and the third. If all are given, check for
misspelling and spacing on the card.

ERROR--NO VALUE FOUND FOR DATA MODIFICATION
CARD FOLLOWS

XXX
The value is actually missing. There is a space after the colon.
There is no colon.

ERROR ON THE INPUT FILE
Probable read error. Resubmit.

ERROR ON INPUT FILE--READ PROBLEM
Problem with the card input. Probable read problem. Resubmit.

ERROR--READ PROBLEM--DATA MODIFICATION CARD
Probable read error on input. Resubmit.

ERROR READ PROBLEM ON AVERAGE GRADE FILE. RUN TERMINATED.
Check the file to see if the data is good. If it seems alright,
then resubmit the run.

ERROR--READ PROBLEM ON CARD INPUT
Probable read problem. Resubmit.

ERROR--READ ERROR ON THE RATING FILE
Check the file then resubmit.

ERROR--SECOND DESCRIPTOR MUST BE OUTPUT
The card is actually missing. There is a spelling or spacing error
on it. There is a spelling or spacing error on one of the Group
Data Specification Cards.

ERROR--SECOND FIELD ON LOSS RATE MODIFICATION MUST BE INCREASE OR DECREASE.
XXX
Check for misspelling or unneeded spaces.

ERROR--THIRD DESCRIPTOR MUST BE DATA MODIFICATION
The card is missing. The card contains spelling or spacing errors.
A request for output is misspelled or contains illegal spaces.

ERROR--TOO MANY TYPES OF COST DATA OUTPUT REQUESTED
RECORD FOLLOWS
A maximum of 32 requests for output is permissible. If the keyword
all is used, no other requests can be made.

ERROR--TOO MANY VALUES FOR KEYWORD
RECORD FOLLOWS
XXX
The number of values for the keyword exceeds the maximum permissible.

ERROR--UNEXPECTED END OF FILE ENCOUNTERED WHILE PROCESSING INPUT
There is no input data. End of file was reached before the program
had completed processing all three types of input information.

ERROR--UNRECOGNIZABLE KEY

RECORD FOLLOWS

XX

The keyword is misspelled. It contains an extra space. The value begins before column 21.

INDEXING ERROR ENCOUNTERED DURING NREC = XXXXXX

55555 index read	X	X	X	X	X	X	X
------------------	---	---	---	---	---	---	---

INDEX COMPUTED	X	X	X	X	X		
----------------	---	---	---	---	---	--	--

This error occurs in the computation of the survival matrix. Check all values of the input group specifications. Check to see that no more than the permissible number of values has been input.

NO DATA MODIFICATIONS ARE SPECIFIED

RUN TERMINATED

The data modification section contains no input. The first data modification card contains a spelling or spacing error.

NO INPUT PARAMETERS ARE SPECIFIED--RUN TERMINATED

There are no input parameters for the group specifications. The first of these input cards contains a spelling or spacing error.

NO OUT PARAMETERS ARE SPECIFIED--RUN TERMINATED

There are no input cards in the OUTPUT REQUESTS section. The first card in the output request section contains a spelling or spacing error.

PROBLEM--GRAPH SUBSCRIPT NEGATIVE OR ZERO

This is a warning message. It may occur if the differences in the magnitude of the variables to be graphed is too large. The subscript will be reset to 1.

OVERALL LOSS RATE IN MONTH XXXX EXCEEDS 1.

The loss rate modification input has caused the overall loss rate in this month to exceed 1. The run is terminated and the user should merely change the loss rate modification and rerun.

OVERALL LOSS RATE IN MONTH XXXX LESS THAN .0005

The loss rate modification has decreased the overall loss rate. This check is necessary to prevent large overflows in the case of division by a very small number. The run will terminate.

READ ERROR ON THE INPUT FILE

Resubmit the job.

TOO MANY INPUT PARAMETERS

The group data specification section contains too many cards. Only one card per keyword is permissible.

TOO MANY VALUES FOR KEYWORD

The program will check to see if the input data contain the minimum required but no more than the maximum. Check the cards to see if there is a duplicate value field.

VALUE XXXX INVALID FOR KEYWORD XX

Check for spelling and spacing errors. The keyword may be wrong.

ERROR DUPLICATE KEYWORD

Only one card per keyword is permitted for the group data specifications.

Annex D2

Annex D2 explains the conversion from the DOD Separation Program Designators (SPDs) through the Defense Manpower Data Center (DMDC) codes into the Attrition Cost Analysis System (ACAS) categories. The mapping includes all SPDs currently in use by the four services. If there is a discrepancy in the interpretation of the code and, therefore, in the DMDC mapping, the initial(s) of the service with the unique code is included after the ACAS code (A, N, AF, or MC). The other services use the more common code.

The general groupings of the DMDC codes are:

00-08	Release from active service
10-16	Medical disqualifications
22	Dependency or hardship
30-33	Death
40-42	Entry into Officer Progress
50-52	Retirement
60-85	Failure to meet minimum behavioral or performance criteria
90-99	Other separations or discharges

The ACAS system considers six loss types which are defined as follows:

1	EAOS and other favorable
2	DFMC
3	Unfit
4	Misconduct
5	Trainee discharge
6	Other unfavorable

Table D2.1 details the conversion of individual codes.

Table D2.1
CONVERSION TABLE FOR SEPARATION PROGRAM DESIGNATORS (SPDs)

<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>
BDK	72	4	GKD	75	2	HDF	94	6
BFS	78	3	GKE	68	4	HDK	72	4
BHJ	82	4	GKF	75	2	HFT	16	6
BHK	82	4	GKG	74	3	HFV	16	6
BLF	67	3	GKH	69	4	HHJ	82	4
BML	76	4	GKJ	66	4	HJB	73	3
BMN	82	4	GKK	67	3	HKA	65	3
BNC	80	2	GKL	77	4	HKB	71	3
CBL	82	4	GLB	65	3	HKC	76	4
DFS	78	3	GLC	76	4	HKD	75	2
DLC	76	4	GLF	67	3	HKE	68	4
FBC	99	1	GLG	68	4	HKF	75	2
FBK	01	1	GLH	69	4	HKG	74	3
FBL	01	1	GLJ	66	4	HKH	69	4
FCM	96	6	GLK	70	4	HKJ	66	4
FDC	99	1	GLL	77	4	HKK	67	3
FDF	94	6	GMB	60	4	HKL	77	4
FHC	00	6	GMC	62	4	HLB	65	3
FND	99	1	GMD	63	4	HLC	76	4
GDK	72	4	GMF	77	4	HLF	67	3
GFN	10	6	GMG	64	4	HLG	68	4
GFT	16	6	GMH	68	4	HLH	69	4
GFV	16	6	GMJ	61	4	HLJ	66	4
GHF	99	1	GMK	60	4	HLK	70	4
GHJ	82	4	GML	76	4	HLL	77	4
GHK	82	4	GMM	67	3	HMB	60	4
GJB	73	3	GMN	82	4	HMC	62	4
GKA	65	3	GMP	70	4	HMD	63	4
GKB	71	3	GNC	80	3	HMF	77	4
GKC	76	4	GPB	67	3	HMG	64	4

Table D2.1 - continued

<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>
HMH	68	4	JFF	90	1	JKH	69	4
HMJ	61	4	JFG	99	1	JKJ	66	4
HML	76	4	JFL	11	6	JKK	67	3
HMM	67	3	JFM	10	6	JKL	77	4
HMN	82	4	JFN	10	6	JKV	70	4
HMP	70	4	JFP	80	3	JLB	65	3
HNC	80	3	JFR	14	6	JLC	76	4
JBB	99	1	JFS	78	3	JLF	67	3
JBC	99	1	JFT	16	6	JLG	69	4
JBD	50	6	JFV	16	6	JLH	69	4
JBH	99	1	JGF	85	5	JLJ	66	4
JBK	02	1	JGH	85	5	JLK	70	4
JBM	02	1	JGZ	85	5	JLL	77	4
JCC	08	1	JHD	99	1	JMB	60	4
JCM	96	6	JHE	85	5	JMC	62	4
JCP	99	1	JHF	99	1	JMD	63	4
JDF	94	6	JHJ	82	4	JMF	77	4
JDG	97	6	JHK	82	4	JMG	64	4
JDJ	05	1	JHM	80	3	JMH	68	4
JDK	72	4	JJB	73	3	JMJ	61	4
JDM	08	1	JJC	73	3	JMK	60	4
JDN	99	1	JJD	73	3	JML	76	4
JDP	98	6	JKA	65	3	JMM	67	3
JDR	08	1	JKB	71	3	JMP	70	4
JED	02	1	JKC	76	4	JNC	80	3
JEM	85	5	JKD	75	2	JND	99	1
JET	85	5	JKE	68	4	JNF	99	1
JFB	95	6	JKF	00	6(MC)	JNF	84	5(A)
JFC	91	6	JKF	75	2	JPB	67	3
JFE	79	6	JKG	74	3	KBD	50	6

Table D2.1 - continued

<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMDC</u>	<u>ACAS</u>
KBH	50	6	KFC	91	6	LCC	08	1
KBH	99	1	KFF	90	1	LDK	72	4
KBJ	99	1	KFG	99	1	LDM	08	1
KBK	01	1	KFN	10	6	LDN	99	1
KBM	02	1	KFS	78	3	LDP	98	6
KCC	08	1	KFT	16	3	LDR	08	1
KCE	03	1	KFU	16	3	LED	02	1
KCF	03	1	KFV	16	3	LFC	91	6
KCG	04	1	KGF	85	5	LFF	90	1
KCH	07	1	KGL	40	6	LFG	99	1
KCJ	06	1	KGM	40	6	LFR	14	6
KCK	05	1	KGN	40	6	LGJ	08	1
KCM	96	6	KGS	40	6	LND	99	1
KCP	99	1	KGT	41	6	LNF	84	5(A)
KCQ	92	6	KGU	42	6	LNF	99	1
KDB	22	6	KGW	41	6	MBK	01	1
KDC	93	6	KGX	40	6	MBM	02	1
KDF	94	6	KHC	00	6	MBN	01	1
KDG	97	6	KHD	84	5(A)	MCC	08	1
KDH	22	6	KHD	99	1	MCE	03	1
KDJ	05	1	KHF	99	1	MCF	03	1
KDM	08	1	KLG	68	4	MCG	04	1
KDN	99	1	KMB	60	4	MCH	07	1
KDP	98	6	KMN	82	4	MCJ	06	1
KDQ	98	6	KND	99	1	MCK	05	1
KDR	08	1	KNF	99	1	MCQ	92	6
KDS	98	6	KNL	78	3	MDB	22	6
KEA	01	1	LBH	99	1	MDC	93	6
KEC	01	1	LBK	01	1	MDF	94	6
KFC	01	1	LBM	02	1	MDG	97	6

Table D2.1 - continued

<u>SPD</u>	<u>DMD</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMD</u>	<u>ACAS</u>	<u>SPD</u>	<u>DMD</u>	<u>ACAS</u>
MDJ	05	1	VBK	52	6			
MDM	08	1	VFJ	12	6			
MDN	99	1	VFK	13	6			
MDP	98	6	VNF	99	1			
MDR	08	1	WFK	13	6			
MDS	98	6	XBK	52	6			
MEA	08	1	XDH	22	6			
MEB	08	1	XDM	08	1			
MEC	08	1	XDP	98	6			
MFC	91	6	XFT	16	6			
MFF	90	1	XND	99	1			
MFG	99	1	YCP	99	1			
MFT	16	6	YDN	99	1			
MFV	16	6	YFB	95	6			
MGU	42	6	YFC	91	6			
MGX	40	6	YKG	74	3			
MHC	00	6	YDN	99	1			
MHD	99	1						
MND	99	1						
MNF	99	1						
NBD	50	6						
PGU	42	6						
RBB	52	6						
RBC	51	6						
RBD	50	6						
RFJ	12	6						
RFK	13	6						
SBD	50	6						
SFJ	12	6						
SFK	13	6						

Annex D3

LIST OF KEYWORDS AND ASSOCIATED VALUES

<u>Keyword</u>	<u>Values</u>
<u>Input Specifications</u>	
SEX	MALE FEMA [LE]
EDUCATION LEVEL	HSG NHS [G]
MENTAL GROUP	I-III [IA] IIIB IV
TERM OF ENLISTMENT	3 YR 4 YR
A SCHOOL	YES NO
AGE AT ENTRY	17 [-OR-LESS] 18 19 [-OR-MORE]
BONUS	YES NO
ENTRY ERA	PRE- [FY1976] POST [-FY1976]
LOSS TYPE	EAOS DFMC UNFI [T] MISC [ONDUCT] TRAI [NEE] OTHE [R]
N OF DEPENDENTS	NONE 1-OR [-MORE]
RATING/COMMUNITY	AVIA [TION] ENGI [NEER/DECK/HULL] TECH [NICAL] SUPP [LY] OTHE [R] any valid Navy rating <div> <div> </div> <div> </div> </div>
	NAVY
	AVIA [TION] GROU [ND] COMB [AT] OTHE [R] <div> <div> </div> <div> </div> </div>
	MARINE CORPS

<u>Keyword</u>	<u>Values</u>
<u>Output Requests</u>	
SURVIVAL FUNCTION	TABL [E] GRAP [H]
LOSS RATES	None
UTILITY FUNCTION	GRAP [H] TABL [E]
COST, UTILITY MEAS.	None
AVERAGE GRADE	None
COST FUNCTION	
Value 1	CUMU [LATIVE] MONT [HLY]
Value 2	RECR [UITING] TRAI [NING] PAY TRAV [EL] CORR [ECTIONS] MEDI [CAL] TOTA [L] ALL OTHE [R]
Value 3	TABL [E] GRAP [H]
<u>Data Modifications</u>	
UTILITY	U=1 COST LEAR [NING CURVES] NEW
LOSS RATES	
Value 1	XX%
Value 2	INCR [EASE] DECR [EASE]
Value 3	EAOS DFMC UNFI [T] MISC [ONDUCT] TRAI [NEE] OTHE [R] ALL
SURVIVAL FUNCTION	NEW

Keyword
COST DATA

Values
RECRUITING COST]
TRAINING]
BASIC TRAINING]
CORRECTIONS]
BAS
BAQ
CLOTHING
BASE PAY]
OTHER]
AVERAGE GRADE]
SEA-FOREIGN]
DISCOUNT RATE]
TRAVEL]
APPRENTICE]
MEDICAL]
INCENTIVE]*
PROFICIENCY]*

* Marine Corps only.

Appendix E

THE ARMY'S ELIM-COMPLIP MANPOWER REQUIREMENTS
PROJECTION SYSTEM

Appendix E

THE ARMY'S ELIM-COMPLIP MANPOWER REQUIREMENTS PROJECTION SYSTEM

SUMMARY

BACKGROUND

The ELIM-COMPLIP System, developed by General Research Corporation (GRC) and the predecessor organization, Research Analysis Corporation (RAC), is one of the key tools used for Army manpower planning. The major components of the system are ELIM (Enlisted Loss Inventory Model), which is used to monitor, analyze, and make the official forecast of enlisted losses, and COMPLIP (Computation of Manpower Programs Using Linear Programming), which is used to generate the official Army manpower program, as well as programs used to evaluate policy alternatives. Recently added to the system is a Gains Module, with the capability to forecast immediate reenlistments and the available quantities of various user-defined categories of supply-limited no-prior-service (NPS) gains.

Techniques used by the system include exponential smoothing and least-squares fit for the forecast of loss rates, nonlinear regression for the forecast of NPS gains, and linear programming to develop the manpower program. The AID (Automatic Interaction Detection) technique has been used to determine those population partitions that are most significant for the forecast of losses. The user can define the partitions used for first-term enlistees on the basis of this analysis and/or policy considerations. The user-defined partitions are used for the projections of both the availability of recruits and the number of attrition losses.

The heart of the system with respect to enlisted losses is the ELIM data base, which contains monthly time-series data on Active Army strength, gains, and losses since January 1971. Partitions of the data are by 13 loss categories—e.g., misconduct, unsuitability and unfitness, dropped from military control, trainee discharge program, and expiration of term

of service (ETS)—and by a multitude of population categories based on such factors as term of service, length of service, and months to ETS, and, under user control, by a variety of qualitative characteristics.

A key element of the data base is a cohort file containing records on each individual who has enlisted in the Army since 1 January 1971. Each record contains information such as date of birth, sex, race, level of civilian education, term of enlistment, enlistment option (e.g., combat arms or service school), qualification test scores, and the date and type of all gain and loss transactions.

The initial version of ELIM, ELIM-I, became operational at RAC in July 1972 and at the Pentagon in May 1973. It was adopted as the official Army loss model in October 1973. Over three years of experience with the model is now available on which to base analyses of forecast errors. The overall mean error of forecasts of total enlisted losses for the period July 1972 to July 1975 is -0.361 percent.

The two new versions of ELIM, ELIM-II and ELIM-III, differ from the original version primarily in the breakouts of data corresponding to the First Term Regular Army. In ELIM-I there are breakouts by term of service and months to ETS. In ELIM-II a distinction is made between those on the initial term of enlistment and those who have either reenlisted or extended the term of service but do not yet have the length of service required (36 months) for classification as careerists rather than first-termers. In ELIM-III there are additional breakouts of those in the first 21 months of service corresponding to user-defined categories based on such qualitative characteristics as level of civilian education, race, age, and scores on qualification tests. Benefits provided by these new developments include enhanced accuracy of projection of enlisted losses, a data base useful for projecting NPS gains, and data useful for analyses of a variety of policy options.

For example, the capability provided by ELIM to monitor various categories of enlisted losses served to alert analysts that an increase in attrition losses had occurred for four-year-term enlistees following the initiation of the combat arms bonus. Following further analyses of data in the ELIM cohort file to determine those characteristics with the

greatest significance with respect to the estimation of loss rates, changes were made in the eligibility criteria for the bonus.

The initial version of COMPLIP became operational at RAC in January 1970. A later version of the model became operational at the Pentagon in February 1971 and COMPLIP-G1, in linkage with ELIM-I, in May 1973. COMPLIP has been used to produce the official Army manpower program since February 1971.

Typically the model operates as follows: given user-specifications concerning such matters as operating strength targets, constraints on various kinds of strength—e.g., total average strength (many years) and/or total end strength—and plans for The Reserve Enlisted Program and the training base, COMPLIP determines the monthly levels of NPS gains for the Active Army that bring projected operating strength into the closest possible agreement with the monthly targets. Once this has been accomplished, the entry of Reserves on active duty for training is maximized in such a way that monthly inputs to basic training centers are smoothed as much as possible.

The new version of COMPLIP, COMPLIP-G2, provides a number of new options with respect to model formulation. The most important of these is the capability to deal explicitly with the breakout of first term enlistees by the categories referenced previously in connection with ELIM-III. Thus, constraints can be imposed, as appropriate, on the projected availability and allowable input of recruits corresponding to each category—e.g., high school graduates and mental group 4s. Furthermore, loss rates applicable to each category are applied over the first 21 months of service. An automated Matrix Generator for COMPLIP-G2 facilitates the tailoring of the model for each application.

Outputs from the ELIM-COMPLIP System have been used for such purposes as the following: (a) decisions about draft calls during the period FY70 to FY73; (b) evaluation of the effect of the discontinuation of the draft and determination of the requirements for volunteer enlistments; (c) preparation of the budget for military personnel; (d) preparation of Program Objectives Memoranda, submitted annually to the Office of the Secretary of Defense; (e) consideration of proposed discharge programs, such as that used currently to screen recruits during the first six months of service; and (f) planning for the training of recruits.

PURPOSE AND BASIC RATIONALE OF THE SYSTEM

General

The ELIM-COMPLIP System is used by the Manpower Programs Division (MPD) of the Office of the Deputy Chief of Staff for Personnel (ODCSPER) to produce the official Army manpower program, as well as to generate programs for use by the Department of the Army (DA) and Department of Defense (DOD) in the examination of Army manpower policy alternatives.

The manpower program is a forecast of various categories of Active Army strength, gains, and losses and the Reserve Enlisted Program (REP) of entry on active duty for training (ADT). A manpower program—which covers each month of the current fiscal year (FY), sometimes the immediately preceding FY, and from two to six future FYs—reflects the current status of Army manpower, recent past experience, and plans and assumptions concerning the future.

Inputs to the system include a variety of historical data, a large part of which is input from other automated systems, and a number of user specifications. Included in the latter are the following; (a) objectives (targets) for the Army's operating strength; (b) any applicable limitations on total end strength and/or manyears; (c) projections of officer gains and losses* and prior-service (PS) enlisted gains; (d) specifications concerning policies governing such matters as enlistments, reenlistments, extensions of terms of service, and various types of early release for enlisted personnel; (e) training objectives for the RFP; and (f) the programmed capacity of the training base.

ELIM

The function of ELIM is to produce forecasts of enlisted losses. ELIM accomplishes this by applying loss rates to the strengths of corresponding elements of the enlisted population. The loss rates are derived from historical data, subject to user modification, when desired, to reflect assumptions concerning the effect of postulated changes in policy or practice from that reflected in the historical data. For certain types of loss—specifically losses associated with any special early release policies—ELIM relies entirely on user-specified factors.

* There is an option that permits COMPLIP to compute these projections in the light of user specifications concerning the officer force.

The population used by ELIM is a profile of the enlisted inventory derived primarily from the Enlisted Master File (EMF). The objective is to use as a base for loss projections information concerning the enlisted population that is the most recent available and that describes the population in terms of characteristics that can be expected to have an important influence on the frequency with which losses of various kinds occur.

The model makes separate projections for a number of different causes of loss associated with a number of different population categories. Losses are grouped into categories that reflect major manpower policies and/or consist of components that are relatively homogeneous in the way they vary with time and with the population variables used in the projection process.

In ELIM-II and ELIM-III the RA population is broken out by FT and career, where the distinction is that of the DCSPER-46 report,^{*} i.e., careerists are those who have more than 35 months of service, with all others designated FT. The FT population is broken out by term of service and months to expiration of term of service (ETS).

A distinction is made in ELIM-II between "first timers" (FTI)—those who are serving on their first enlistment contract—and "second timers" (STI)—those who have either reenlisted or extended the term of service, but according to the DCSPER-46 definition are still designated FT. The FTI are broken out by term of service and months to ETS, while the STI are broken out only by months to ETS. The breakout of FTI vs STI enhances projection accuracy and provides additional historical strength and loss data that are useful for other applications.

In ELIM-III there is a further breakout of FTI in the first 21 months of service into a maximum of four groups, designated characteristic groups (C-groups) where the user specifies the definition of these groups in terms of characteristics such as age, race, sex, civilian education, and scores on classification tests. For example, C-group 1 might consist of high school graduates; C-group 2 of those classified in mental group 1,2 or 3 who have not graduated from high school; C-group 3 of mental group 4 non-graduates who are aged 18-20; and C-group 4 of all others. It is anticipated that the user will vary these definitions to correspond to specific policies that are in effect or under consideration—

^{*} Dept. of Army, "Strength of the Army," DCSPER-46, published monthly.

e.g., constraints on the input of high school graduates or those classified in mental group 4. Another consideration bearing on the user's specification of C-group definitions is the influence of certain characteristics—e.g., civilian education, race and age—on loss projection errors. This point is discussed further in later sections.

COMPLIP

The function of COMPLIP is to generate an optimal manpower program—i.e., a program that both satisfies all of the user-specifications, if it is feasible to do so, and is optimal in some sense, where the user can exercise some choice with respect to the criterion^{*} for optimality and a wide range of choice concerning constraints on the manpower program. Typically the model operates as follows: given user specifications concerning such matters as operating strength targets, constraints on various kinds of strength—e.g., total average strength (many years) and/or total end strength—and plans for the REP and the training base, COMPLIP determines the monthly levels of untrained [i.e., no-prior-service (NPS)] accessions for the Active Army that bring projected operating strength into the closest possible agreement with the monthly targets. Once this has been accomplished, annual REP entry on ADT is maximized in such a way that monthly inputs to basic training centers are smoothed as much as possible.

The new version of COMPLIP, COMPLIP-G2, provides a number of new options with respect to model formulation. The most important of these is the capability to deal explicitly with the breakout of FT enlistees by the C-groups discussed previously in connection with ELIM-III. Thus, constraints can be imposed, as appropriate, on the projected availability and allowable input of recruits corresponding to each C-group. Furthermore, loss rates applicable to each C-group are applied over the first 21 months of service. An automated Matrix Generator for COMPLIP-G2 facilitates the tailoring of the model for each application.

^{*} Usual practice is to specify two or more criteria to be used in sequence.

System Linkages

Automated linkages exist between the various modules of the system. To facilitate use, each type of user-supplied data must be input to the system only once. When the same data element is required by more than one module or program it is passed automatically from one to the other. Further, when a new run is made, the only inputs that must generally be supplied are those that differ from data used in the preceding run.

DESCRIPTION OF THE SYSTEM

This section discusses the rationale, inputs and outputs of the ELIM-COMPLIP system. The first section deals with ELIM, defining the population categories used in each of the new versions of the model, the basic logic of the model, and the loss categories for which separate projections are made. Then the functions of the three modules of ELIM-II and ELIM-III are discussed—where the modules are the Data Processor Module (DPM), Factor Development Module (FDM) and Inventory Projection Module (IPM). Next are discussions of COMPLIP-G2, the fourth module of the system. Finally, there is a table which demonstrates the frequency of use and computer time requirements for each module.

ELIM

Population Data Arrays

It was indicated in the preceding section that ELIM computes losses by applying loss rates to elements of the enlisted population, where the population elements constitute a profile of the inventory of enlisted personnel derived primarily from the most recent EMF. Two separate partitions of the enlisted population are used. The first partition^{*}—for which the primary breakouts are by component (i.e., draftees or Army of the United States (AUS) and RA, with RA broken out by FT and career) and months to ETS—is the basis of the projection of all loss categories except certain forms of early release.^{**} The second partition —for which the primary breakouts are by location (i.e.,

^{*} Illustrated in Figs. E.1 to E.4.

^{**} See Table E.1 for the list of loss categories.

Continental United States (CONUS) and short- and long-tour areas), component, and months to ETS—is used for the two early release categories. Details of these partitions are given in the following paragraphs, where starting with Fig. E.1 the formats are shown for each of the data arrays by which ELIM keeps track of the population.

As shown in Fig. E.1, ELIM records the number of draftees—or AUS personnel—corresponding to each possible number of months to ETS.* The allowable range of months to ETS is from 24 to zero and then to negative values—i.e., corresponding to those still on the rolls past the month of the ETS date.

Months to ETS	AUS
< -6	
-6	
⋮	
24	

Fig. E.1—Format of the Data Array for the AUS Inventory

The EMF contains records of both AUS and RA personnel with past-due ETS dates, though the number has declined significantly over the period covered by the ELIM data base, which starts with month-end December FY71. It is understood that these records correspond in some cases to individuals whose reenlistment, extension** or separation has not yet been reported and in other cases to individuals whose separation is delayed past the normal ETS for administrative, punitive, or medical reasons. ELIM keeps track of personnel with -1, -2, ..., -6 months to ETS and combines all who are more than six months past ETS in the catchall category that is labeled < -6 in Fig. 1.

* While this data array will soon be empty as a result of the discontinuation of the draft, the system retains the capability to deal with AUS strength, gains and losses.

** Extension of term of service is limited to RA personnel.

Figure E.2 shows the format for the ELIM-II data array for FT RA personnel. As indicated in Fig. E.2, FTI are broken out by term of service and months to ETS. The arrows show the portions of the array in which there may be data. The data arrays for those with 4, 5, and 6 year terms are extended past the point where they are designated careerists in order to permit tracking of these personnel until they either reenlist, extend, or are lost to the Army. (All summary reports of strength and loss data produced by the system properly account for these personnel as careerists.) As indicated in Fig. E.2, STI are broken out only by months to ETS.

Months to ETS	FT RA ^a					STI
	FTI, with term of service					
	2	3	4	5	6	
< - 6	↑	↑	↑	↑	↑	↑
...						
3	↓					
4	↑					
...						
15		↓				
16		↑				
...						
24	↓					
...						
27			↓			
28			↑			
...						
36		↓				
...						
39				↓		
40				↑		
...						
48			↓			
...						
51					↓	
52					↑	
...						
60				↓		
...						
72					↓	↓

Fig. E.2—The data in the columns for 4, 5 and 6 year terms of service correspond to careerists for values of months to ETS less than 12h-36, where h equals term of service.

Figure E.3 shows the formats for the ELIM-III data arrays for FT RA personnel. Data are broken out by FTI and STI in exactly the same way as for ELIM-II. In addition, as shown at the bottom of Fig. E.3, FTI in the first 21 months of service are broken out by a maximum of four user-defined C-groups. In the subsequent section on the DPM information is presented concerning the options that are available to the user with respect to definition of the C-groups. The dashed lines in the schematic at the top of Fig. E.3 correspond to the first 21 months, for which the qualitative breakout is used.

Month of service	FTI, of C-group 1 ... N	
1	↑ ↓	↑ ↓
2		
⋮		
⋮		
21		

Fig. E.3—Formats of the ELIM-III Data Arrays for the FT RA Inventory

Figure E.4 shows that the career RA inventory is broken out by months to ETS and by n length-of-service categories. Currently the value of n is two, with the length-of-service classification based on eligibility for nondisability retirement.*

Months to ETS	Career RA, with length of service s ₁ . . . s _n		
< -6			
-6			
⋮			
⋮			
≥ 72			

Fig. E.4—Format of the Data Array for the Career RA Inventory

* The ELIM data base has strength, gain, and loss data broken out by each year-of-service classification from the first to the thirtieth and a catchall category for those with more than thirty years of service. Hence, if it should be deemed desirable to expand the number of length-of-service classes used in projecting career losses, it would not be necessary to reprocess all of these data.

As indicated previously, for certain kinds of losses—specifically those associated with early release policies—it is useful to have a breakout of the population by location. Hence, there is a data array for the population in the CONUS broken out by months to ETS and by component—i.e., AUS, FT RA and career RA. There are also data arrays for those in short tour areas broken out by months to ETS, component and by months to the date eligible for return from overseas (DEROS). The same breakout is used for personnel in long tour areas.

Logic of Inventory Projection

The basic logic for ELIM's projection is as follows. Starting with an initial inventory derived primarily from the most recent EMF,^{*} ELIM projects this inventory through time for as many months as the user specifies.^{**} At the beginning of each monthly cycle except the first,^{***} each element of the inventory is aged—i.e., the status is updated with respect to such measures as months to ETS, months to DEROS and length of service.^{****} Then the population is adjusted in turn for each type of projected gain, extension of term of service, and each type of projected

^{*} The initial inventory for the ELIM-III C-group breakout is derived from a cohort file that is discussed in the section on the DPM.

^{**} The manpower program can cover a maximum of seven complete FYs. If the program includes FY76 and FY77, it also covers the three-month period, July to September 1976, between these FYs. Normally part of the published manpower program corresponds to reported history rather than forecasts—i.e., the beginning of the current FY and sometimes the preceding FY.

^{***} The starting inventory is adjusted by the DPM to represent the population as of the beginning of the first month of the projection. However, at the beginning of each monthly cycle after the first, the inventory represents the population as of the end of the preceding month and, hence, must be aged.

^{****} Updating of the status with respect to length of service involves the following: (a) the month of service for FTI broken out by C-group is updated and (b) the appropriate populations are transferred from STI to the career not-retirement-eligible category and from the not-retirement-eligible to the retirement-eligible category.

loss, where the number of losses is in most cases determined by the application of loss rates. Finally, for each of a user-specified number of months, there is an update of the breakout of the population by location—i.e., CONUS, short and long tour areas.

Loss Categories and Projection Procedures

Table E.1 gives some information concerning the projection procedure used for each type of loss for which a separate projection is made. The table indicates whether the eligibility rule for each type of loss is built into the model or user-specified. To compute losses, a factor is multiplied by each element of the eligible population. The table indicates whether the factors are statistically derived by ELIM from historical data or are user-specified. All factors derived by ELIM are subject to user modification when desired. The significance of the step number listed in the last column of the table is explained later in this section.

The first two items—~~immediate reenlistment and extension~~—do not contribute to net losses, of course, but since ELIM must (a) adjust the inventory to reflect the change in months to ETS for those who reenlist and extend and (b) shift FT from FTI to STI, it is necessary to treat these transactions as losses with corresponding numbers of gains.

Immediate reenlistment losses are computed as a function of the number of user-specified immediate reenlistment gains. The losses are broken out by months to ETS and other parameters of the population data arrays by means of factors derived by ELIM from historical data. These can be modified to reflect any changes in policy, such as that which became effective in February 1973, limiting reenlistments of AUS and FT RA personnel to those who had completed 21 months of service.

In accordance with current policy, extensions are limited to RA personnel and are computed by means of ELIM-derived factors.

Overseas returnee losses represent early releases of individuals who return from overseas with a user-specified number of months remaining to ETS. There are built-in rules limiting eligibility to those whose tours are completed; however, the user can in effect extend these rules to reflect any planned tour curtailments. The user can also introduce factors

Table E.1

ELIM LOSS CATEGORIES AND PROJECTION PROCEDURE

Type of loss	Eligibility rule		Factor source		Step
	Built-in ^a	User-specified	ELIM-derived ^b	User-specified	
Immediate reenlistment ^{c,d}	X		X		1
Extension ^{c,e}	X		X		1
Overseas returnees		X	X	X	2
Special early release ^f		X	X	X	3
DFMC ^e	X		X		4
Trainee discharge program ^e	X		X		4
Expeditionary discharge program ^e	X		X		4
Misconduct ^e	X		X		4
Unsuitability and unfitness ^e	X		X		4
Administrative ^{e,f}	X		X		4
Unknown cause ^e	X		X		4
Nondisability retirement ^e	X		X		4
ETS ^e	X		X		5

^aBuilt-in eligibility rules can be made more restrictive by setting specified rates to zero.

^bAll ELIM-derived factors are subject to user-modification, when desired.

^cLosses of this type are offset by a corresponding number of gains.

^dImmediate reenlistment losses are computed as a function of the number of user-specified immediate reenlistment gains.

^eFactors for these loss categories are derived by means of exponential smoothing of historical time-series data.

indicating that not all of the personnel eligible according to the specified rules will be released.*

For any special early release policies effective in the early months of the projection, the user must specify the eligible population and the fraction of those eligible who will be released. These factors are applied to the population broken out by location.

Normally the breakout by location is not maintained for the entire projection period, since it is not considered likely that the detailed breakouts by location and months to DEROS can be maintained accurately for multi-year projections. The IPM discontinues this breakout at a user-specified time period and thereafter the only population breakouts are those shown in Figs. E.1 to E.4. For this later part of the projection period, overseas returnee losses are computed with the use of factors generated within the IPM on the basis of forecasts for the earlier months. If early release losses are to be projected for this later period, a similar procedure is followed.

DFMC losses are computed, using ELIM-derived factors, for all elements of the population except career retirement-eligibles.**

Losses under the trainee discharge program result from the screening of recruits during the first six months of service. The expeditious discharge program applies to personnel in subsequent months of service, where the eligibility rule has changed several times since the initiation of the program.

The next four categories—misconduct, unsuitability and unfitness, administrative, and unknown cause—represent attrition losses in the sense that they are unscheduled losses that apply with varying relative frequencies to essentially all population elements. The losses due to unknown cause largely represent "research" losses—i.e., transactions that originate at Headquarters, DA, as a result of audits or other measures taken to improve the accuracy of the EMF.

*Early releases for overseas returnees have been discontinued. However, the system retains the capability to deal with this loss category.

**Reports of DFMC losses indicate that a negligible number of these losses involve career retirement eligibles.

Nondisability retirements are limited, of course, to retirement-eligible careerists.

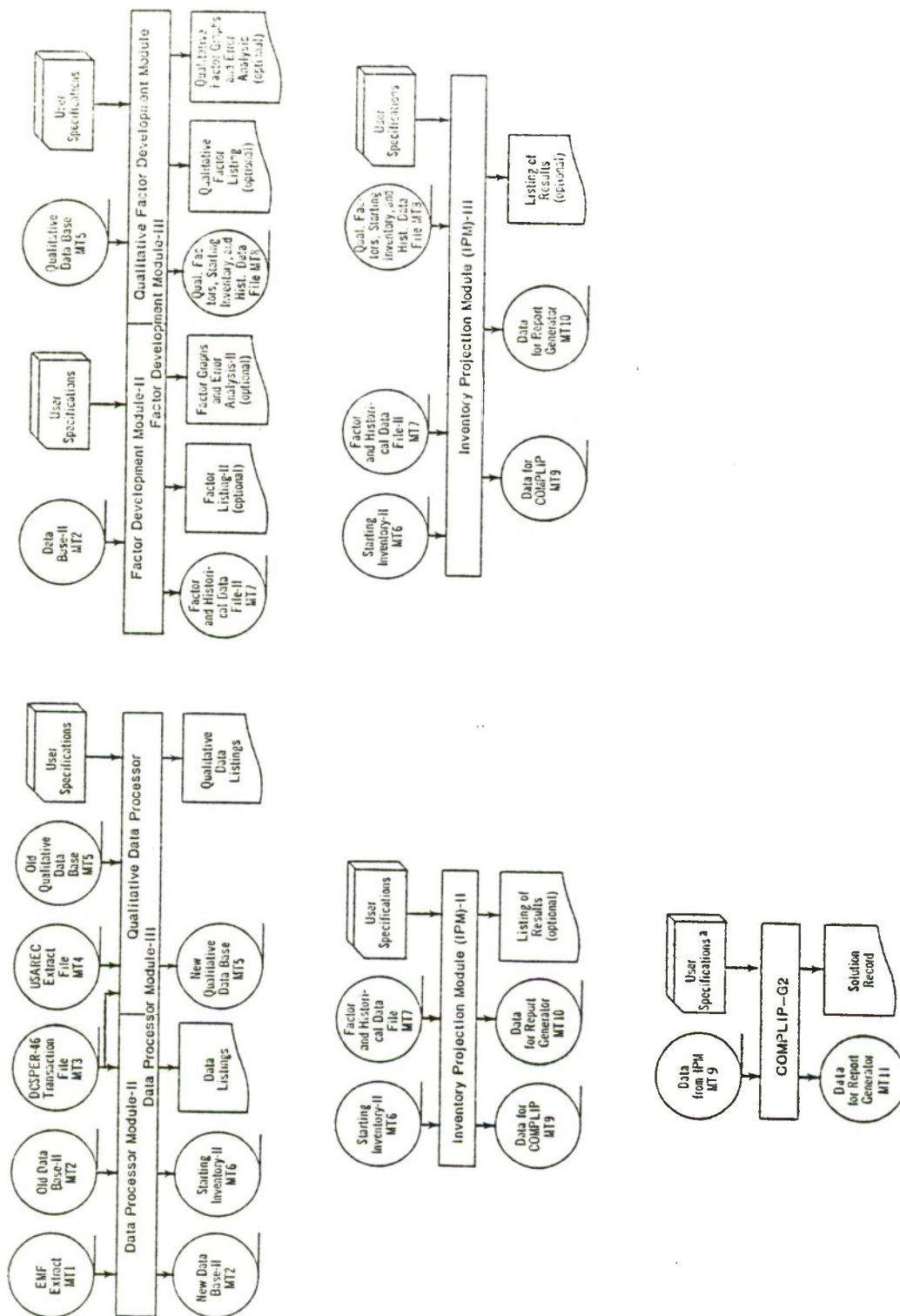
ETS losses are restricted to personnel who are at or near ETS. Initially it has been anticipated that ELIM would designate as ETS losses all personnel with zero months to ETS who were not projected to reenlist, extend, or be lost for any other cause. Such a computation would not have required the use of ETS loss rates or factors. However, as noted previously, reported data indicate that some individuals remain on the rolls past the ETS date. Hence, in order for ELIM to track these reported data, it was necessary to derive factors for the projection of ETS losses. However, even with the use of these ETS factors, if the projection proceeds far enough into the future, ELIM ultimately accounts for losses occurring to precisely one hundred percent of the enlisted personnel who are on the rolls at any given time.

For all ELIM-derived loss rates except those applicable to immediate reenlistments, overseas returnees and special early release, the statistical technique of exponential smoothing is used. This technique is discussed in the subsequent section describing the FDM.

For each month of the projection, losses are computed in the order listed in Table E.1. Because loss rates are applied to the population remaining after previous steps in the computation (where the steps are indicated by the numbers in the last column of Table 1), appropriate interactions can be accounted for. Thus, for example, when there are special early release policies in effect, incidence of other types of loss decrease; ETS losses decrease when early release and various types of attrition losses increase; and a decrease in reenlistments or extensions causes an increase in ETS losses.

The three modules of ELIM-II and ELIM-III are shown in the upper part of Fig. E.5. This figure is a very simplified schematic of the ELIM-COMPLIP system, showing the four major modules of the system with their input and output files and reports.* In the following sections each module of the system is discussed, beginning with the three ELIM modules. Some of the

* As indicated in more detailed schematics shown in Fols III and IV, there are several programs associated with each module pictured in Fig. E.5. While there are files that are passed from one program to another, Fig. E.5 shows only those files that are passed between modules.



^aSome of these data are in automated files created by programs external to the ELIN-COMPLIP System.

Fig. E.5—Summary Schematic of the ELIN-COMPLIP System

files pictured on the schematic as sequential magnetic tape files are in fact random access disk files (e.g., MT9). In both the schematic and the discussion, user inputs are designated to be made via punched cards. In all cases the alternative of using a remote terminal for user inputs is feasible. In fact, the system installed at the Pentagon is run in this way.

Data Processor Module

The DPM produces the files of historical data on which the ELIM projections are based. ELIM-II uses files produced by the DPM-II, while ELIM-III uses those produced by both the DPM-II and the Qualitative Data Processor (QDP). Both ELIM-II and ELIM-III data bases are updated monthly. The ELIM-II data base contains enlisted strength (or population) data as of the end of each month since December FY71 and data on the enlisted gains, losses, and extensions of terms of service reported during each month since January FY71.* The Qualitative Data Base (QDB) contains strength, gain, loss and certain demographic data—e.g., level of civilian education, age, race, sex, and scores on qualification tests—for all FTI who have enlisted since 1 January 1971. Input data are furnished by the Military Personnel Center (MILPERCEN) and the U.S. Army Recruiting Command (USAREC) for each monthly update.

Characteristic groups can be defined in terms of any of the information contained in the ELIM-III cohort file. This file contains information for each FT enlistee who has come into the RA during each month since January 1971. The format and data sources for the cohort file are shown in Table E.2.

An intermediate file has been created in order to provide the user with a measure of flexibility in defining the C-groups to be used for a manpower program alternative without having to incur the expense and inconvenience of processing the complete cohort file for each application. This file contains for each cohort—i.e., for each month of accession—and each applicable month of service in the range 1 to 21, the strength corresponding to each of 150

* At the time of writing not all of the data referred to above have been incorporated into the ELIM-II data base. For the initial application, data for the period December 1973 to June 1974 were used. However, since the update procedures of the DPM-II permit the addition of both earlier and later data to the file, it is anticipated that the data base will eventually incorporate all of the available data.

Table E.2

FORMAT FOR ELIN-III COHORT FILE

Data element	Characters	Source ^a
SSAN ^b or TIN ^c	1-9	DCSPER-46 and USAREC ^d
Date of birth	11-16	DCSPER-46
AFQT ^e score	17,18	DCSPER-46
Sex	19	DCSPER-46
Race	20	DCSPER-46
Term of enlistment	21	DCSPER-46
Civilian education	26	DCSPER-46 ^f
Mental group	27	DCSPER-46
Enlistment option	28-31	DCSPER-46
AQB ^g score summary	32-42	Generated from USAREC data
Lottery number	43-45	USAREC ^h
Number of dependents	46	USAREC
Marital status	47	USAREC
Waiver	48	USAREC
Age in months	49-51	Generated
Number of transactions	52-53	Generated
Date of transaction ^j	54-57, etc. ⁱ	DCSPER-46
Type of transaction ^j	58-60, etc. ⁱ	DCSPER-46

^aFor data elements contained in both DCSPER-46 and USAREC files, the former is the preferred source. However, USAREC is used if the DCSPER-46 code is not valid. The DCSPER-46 is the file of enlisted gain and loss transactions.

^bSocial security account number.

^cTemporary identification number.

^dThe SSAN or TIN is used as a basis for matching records on the DCSPER-46 and USAREC files.

^eArmed forces qualification test.

^fPrior to June 1973 civilian education was available from the USAREC file but not from the DCSPER-46 file.

^gArmy qualification battery.

^hCan be computed from birth date.

ⁱRepeated for each transaction up to a maximum of 12.

^jSPN code for loss transactions reported up to 30 June 1974, SPD code for subsequent loss transactions, and official DA code for gain and extension transactions.

population categories and for each of these categories the frequency of occurrence of each of the following types of gain and loss: DFMC, expeditious discharge program, misconduct, unsuitability and unfitness; trainee discharge program, administrative losses, losses due to unknown cause; other types of loss, extensions, and gains other than NPS. The hope is that for most applications the user will be able to define the desired C-groups in terms of the categories. Given these definitions, the DPM accumulates the frequency data in the intermediate file to correspond to the specified C-groups. Several examples of such C-groups are given in Table E.3.

The computations of the DPM-III and COMPLIP-G2 are made under the assumption that the user-defined C-groups are mutually exclusive and exhaustive with respect to FT enlistees. However, neither the DPM-II nor the FDM-III requires adherence to this assumption. Hence, if data are desired for some other application, the user of the DPM and FDM is free to define the C-groups in any way that he chooses. For example, tables and graphs can be produced for loss rates applicable to any set of no more than four population categories that can be defined on the of information contained in the cohort file.* The data can be confined to a subelement of the population—e.g., males or blacks—and categories can be overlapping—e.g., high school graduates and mental group 4's.

The DPM does some editing of the data and constructs data arrays that represent (a) a profile of the enlisted population and (b) frequency distributions of gains, losses and extensions.

The following outputs are produced by the DPM: (a) the updated ELIM-II data base (MT2)—i.e., the time-series data of strengths, gains, losses and extensions that constitute the data base for the FDM-II; (b) the population data arrays (MT6) that constitute the starting inventory for the IPM-II and one of the starting inventories for the IPM-III; (c) the updated QDB (MT5) which is input to the FDM-III, and (d) listings of all the data arrays produced for the monthly update. Optional listings of any desired data from the data base are also available.

* The cohort file records the SPN or SPD code.

Table E.3

EXAMPLES OF CHARACTERISTIC GROUP DEFINITIONS

Example	GROUP			
	1	2	3	4
1	HS graduate	Non-graduate, mental group 1,2,3	Non-graduate, mental group 4, age less than 20	All others
2	Black, HS graduate	Black, non-graduate	Non-black, HS graduate	Non-black, non-graduate
3	Female	Male, HS graduate, mental group 1,2,3	Male, non-graduate, mental group 1,2,3	All others
4	HS graduate or GED, mental group 1,2,3	HS graduate or GED, mental group 4	Non-graduate and non-GED, mental group 1,2,3	All others

Factor Development Module

The FDM uses the historical time-series data of the ELIM data base* to compute most of the loss rates and other factors needed for the rest of the system. ELIM-II uses factors produced by the FDM-II, while ELIM-III uses factors produced by both the FDM-II and the Qualitative Factor Development Module (QFDM). Inputs to the FDM-II consist of the ELIM-II data base (MT2) and a card deck containing user specifications, while inputs to the QFDM consist of the QDB (MT5) and a card deck of user specifications.

The factors produced by the FDM represent forecasts for the period to be covered in the manpower program. Some are derived as simple averages of historical data. Others—specifically the loss rates that are the major determinants of ELIM's forecasts of enlisted losses—are derived by the use of the technique of exponential smoothing.

In its simplest form this technique derives a new forecast by combining a new observation with an old forecast, as follows:

$$\text{New forecast} = A (\text{new observation}) + (1-A) (\text{old forecast}) \quad (1)$$

where the "smoothing constant" A, which has a value in the range zero to one, determines the relative influence of the new and old data. For application to ELIM, this formula can be interpreted as follows: Suppose that a new month of actuals becomes available, e.g., for the month of June. The June data constitute the "new observation." The "new forecast" is for July. The "old forecast" is that previously made for June when the last month of actuals was May. The exponential smoothing technique can be extended to permit forecasts to be adjusted for seasonal variations and for increasing or decreasing trends. Adjustments for seasonality have been built into ELIM

*The populations used in the computation of historical loss rates are analogous to the populations to which the rates will subsequently be applied in the IPM. That is, the rate for month m is computed by dividing the losses reported in month m by the corresponding adjusted population reported as of the end of month m-1. The population is adjusted by adding the same types of month m gains and subtracting the same types of month m losses that will be used to adjust the projected populations in the IPM computations prior to the IPM computations prior to the application of the given loss rate. Thus, for example, the populations used to compute ETS loss rates are adjusted for all types of gains and all types of losses preceding ETS in the step sequence.

for some loss rates. However, no completely automated procedure for forecasting trends has been built into the model because it was believed that it would be hazardous to do so. The forecasting of trends is accomplished through the application of user-specifications derived from analyses conducted outside the model but in most cases based on data provided by the model. ELIM can accept specifications for essentially any desired trend pattern.

The user has great freedom in the way that he may specify modifications. For example, he may indicate a target value for the factor to reach at a specified point in time and a parameter that controls the amount of curvature for the trendline as it moves towards the target. The FDM program then computes the factors for the intermediate points. The target value may be specified as a linear function of a subset of historical data or, alternatively, as a specific numerical value. The former procedure is generally preferred since it frequently permits trends for large groups of factors to be specified in the same way. In such cases the user must usually prepare only one set of specifications applicable to all factors within the group.

The user controls FDM forecasts through specifications input on punched cards. As indicated above, these specifications can be used to input the user's assumptions concerning (a) the future course of observed trends in loss rates or (b) almost any desired modification of any FDM factor to reflect assumed changes from the values computed from historical data. To illustrate this point, suppose, for example, that in each case where a misconduct loss rate is currently higher than the average level for the first half of CY71, it is deemed appropriate for the rate to be phased down so as to reach that level at the end of FY77. Or suppose, for example, that it is assumed that each DFMC race for FT-3 will decrease to 80 percent of its current value by December FY78. This flexibility of the FDM is supported by some fairly elaborate routines (e.g., the procedures described above) that have been built into it to cut down on the effort required for the user to analyze and control the process of forecasting loss rates.

The FDM produces the following outputs: (a) a file of factors and historical data (MT7) for input to the IPM-II and IPM-III;* (b) a file of

*The historical data are not required by the IPM but are incorporated by the IPM into a file that is passed on to COMPLIP-G2.

qualitative factors, starting inventory, and historical data (MT8) for input to the IPM-III; (c) optional listings of some or all of these factors; and (d) a variety of graphical displays which are also optional. The graphical displays provide an extremely valuable tool to the analyst who is responsible for producing loss forecasts, since they permit him, with a relatively small expenditure of effort, to monitor the reported loss rates for any unexpected development and to review the rates forecast by the exponential smoothing procedure. They also assist him to make judgments about modifications needed to reflect postulated trends.

Since ELIM generates forecasts for a very large number of loss rates—4465 for ELIM-II, and 5137 for ELIM-III—a special effort has been made to provide tools to assist the responsible analyst(s) in monitoring historical loss rates and controlling forecasts. The graphical displays represent one of these tools. It is feasible to examine a complete set of graphs for rates associated with a given cause of loss in a relatively brief period of time. At the time of each monthly update this is in fact the recommended procedure for any cause of loss that is known or suspected to be subject to significant turbulence.

Inventory Projection Module

This is the module that projects the inventory through time, using the logic that was described in an earlier section.

Inputs to the IPM-II are the starting inventory (MT6) produced by the DPM-II and the file of factors (MT7) produced by the FDM-II. Inputs to the IPM-III consist of the same files, MT6 and MT7, that are input to the IPM-II as well as the file of factors and starting inventory (MT8) produced by the QFDM. User-supplied inputs to both the IPM-II and IPM-III include projections of PS gains, any projections of NPS gains that he wishes to input,^{*} and specifications of any current, planned, or postulated special early release policies. Early release policies are specified in terms of the eligible populations and the fraction of each such population element that it is assumed will be released.

^{*} Levels of those NPS gains that are not input to the IPM are determined subsequently by COMPLIP.

Outputs of both the IPM-II and IPM-III include the following: (a) projections of enlisted losses of all types except those applicable to the populations resulting from NPS gains whose levels are to be determined by COMPLIP at the next stage of the computations and (b) loss rates applicable to these latter populations. The user can also get listings of the results of any of the IPM computations that are of interest. Both the types of results and the projection months for which they are listed are under user control. Such listings are sometimes useful for detailed analysis of the effect of a proposed policy change. Such was the case recently, for example, when it was proposed to change the eligibility for immediate reenlistment from those with at least 21 months of service to those within 3 months of ETS.

COMPLIP-G2

COMPLIP-G2, like the earlier versions of the model, is a linear programming (LP) formulation of the problem of developing a manpower program. The model produces a manpower program forecast (covering a period, typically, of three to seven years) for the Active Army and the Reserve requirements on the training base.

The process of using COMPLIP-G2 involves three activities. The first is the tailoring of the COMPLIP matrix^{*} to reflect all of the appropriate input data and user specifications. As indicated previously, there is an automated Matrix Generator that can be used for this purpose. The second activity involves communicating with the LP system that is available for the particular computer being used so that it can compute the optimal solution—or, in accordance with the usual practice with COMPLIP, the sequence of two or more optimal solutions. The third activity consists of the extraction of data from the solution record created by the LP system and the combining of these data with others previously supplied by the IPM and the user.

The Matrix Generator can accept the file MT9 created by either the IPM-II or IPM-III. User specifications to the Matrix Generator include the

^{*}The matrix of an LP formulation is a data array containing the coefficients and right-hand-side (RHS) constants of the objective function and constraints of the problem, as well as the values of any upper, lower, or fixed bounds on any of the variables.

following:^{*} (a) targets for the operating strength of the Active Army; (b) optional constraints on total end strength and/or manyears; (c) optional constraints on officer gains, losses, and strength—e.g., requirements that officer strength in selected periods be a specified fraction of total strength (d) optional constraints on FT enlistments,^{**} where these constraints may, if desired, be specific to a user-defined C-group—e.g., upper limits on the projected availability of high school graduates, lower limits on the monthly or annual percentages of high school graduates, upper limits on the monthly or annual percentages of those classified in mental group 4, and constraints reflecting the projected seasonal patterns of enlistments for each C-group; (e) projections of REP enlistments; (f) constraints on REP entry on active duty for training (ADT); (g) the programmed capacity of basic training centers; and (h) the sequence of two or more objective functions selected from the following, where either (1) or (2) and (6) are always used: (1) minimize differences between operating strength and structure spaces, (2) same as the preceding with an increased penalty for deviations larger than a specified amount, (3) bring strength at the end of specified FYs as close as possible to specified target values, (4) bring manyears in specified FYs as close as possible to specified target values, (5) maximize and/or minimize the input of specified C-groups, and (6) minimize the REP backlog, thus maximizing the REP entry on ADT and smoothing the basic combat training (BCT) input. The user also supplies a control program that directs the procedures by which the LP system computes the sequence of optimal solutions.

COMPLIP-G2 outputs include data files (MT11) for use by the RGM and a hard copy listing of the solution record.

^{*} The Matrix Generator accesses some of these data from files created by programs external to the system.

^{**} While not currently being used, the capability to represent the other type of NPS gains, draftees, has been retained.

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